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INTRODUCTION.

THE first general meeting of Malay officers of the Agricultural Department was held in Kuala Lumpur in June, 1919. On that occasion short addresses on agricultural subjects and demonstrations were given by various members of the European staff. Considerable interest was displayed in the meeting, and the advantages of bringing together officers from the different States, and giving the opportunities, formal and informal, for discussion were so obvious that it was decided to repeat the meeting in future years.

In talking over plans for the 1920 meeting with Mr. South (Chief Agricultural Inspector) it became clear that, owing to so many European officers being on leave and others just returning or just coming to the country, there would be difficulties in the way of holding a meeting on the same lines as in 1919. After some discussion we decided to attempt the experiment of a conference of Malay officers. A number of officers who had enjoyed special opportunities for studying particular subjects were invited to prepare papers, and others were asked to take part in the discussions.

The papers were read in Malay and the discussions, in which the European officers took part, were also in that language. The papers, translated into English by the writers themselves, are published here in full and it is unnecessary to comment on them. It remains to be added that considerable interest was shown in the discussions, questions being asked and additional information being given in a most gratifying manner.

Football matches had been arranged for the afternoons and generally the conference proved not only a valuable aid to efficiency but a most enjoyable function, reflecting great credit on those responsible for the arrangements among whom I may perhaps specially mention, Mr. F. W. South, Chief Agricultural Inspector, and Raja Mahmud bin Raja Ali, Senior Agricultural Assistant.

L. L.-B.

MALAY OFFICERS' CONFERENCE.

A conference of all the Malay officers of the Agricultural Department was held in Kuala Lumpur commencing on Monday, August 16th, 1920, at 10 a.m., and terminating at 1.30 p.m. on August 19th.

The proceedings commenced with the examination of numerous specimens and illustrations of pests and diseases of rubber, coconuts and padi in the museum of the Agricultural Department. Short explanations of the specimens were given by the Mycologist, the Government Entomologist and the Acting Assistant Agricultural Inspector, Mr. Norris, the last of whom was responsible for the preparation and mounting of the exhibits.

At 10.30 a.m. the Director made a short opening speech welcoming the officers, after which a paper was read in Malay by the Senior Agricultural Assistant, Raja Mahmud bin Raja Ali, on "Padi Varieties and Padi Breeding." An interesting discussion followed.

At 11.30 a.m., under the chairmanship of the Mycologist, the Junior Agricultural Assistant, Seremban, Inche Mohamed Amin, read a paper on "Mouldy Rot Disease and its Treatment." After giving a careful description of the disease, illustrated by a model and photographs, the writer detailed the methods of control enforced on small holdings in infected areas. During the discussion which followed, Raja Mohamed, Junior Agricultural Assistant, Muar, gave an account of the disease in Johore. The Junior Agricultural Assistant, Malacca, Inche Arifin, emphasized the fact that damage to tapping areas was found in Malacca caused probably by deep tapping and dry weather, and that this was apt to be mistaken for Mouldy Rot by those having only published descriptions to judge by, but unacquainted with Mouldy Rot disease in the field.

On Tuesday 17th, the members of the conference proceeded to Seremban where a demonstration of Mouldy Rot disease and its treatment was given on a small holding about two miles from the town, by the Chief Agricultural Inspector and the Malay officers stationed in Seremban. Cases of Pink diseases and of Wet Rot (Fomes pseudoferreus) met with on this occasion were also pointed out to those previously unacquainted with them.

On Wednesday, August 18th, a field demonstration of modern tapping methods was given on Weld Hill at 7 a.m. by the Agriculturist, who showed a number of different systems on the experimental plots there, and explained the rate of bark renewal allowed by each.

At 11 a.m., under the chairmanship of the Economic Botanist, a paper was read by the Junior Agricultural Assistant, Pekan, Syed Abdul Rahman, on "Padi Cultivation in Pahang." A discussion followed, mainly on details connected with the different methods.

At 12.30 p.m. a paper was read by the Senior Agricultural Assistant, Raja Mahmud, on "Methods of Improving Small Holdings." In the discussion which followed emphasis was laid on the difficulty of persuading Malays to adopt the advice which is regularly given them by officers of the Department.

On Thursday the 19th, proceedings opened with a demonstration of budding and grafting by the Assistant Agriculturist in the Gardens at 7 a.m. Inarching, patch grafting, terminal grafting and budding were all shown and an account was given of the various plants for which each was most suited. This demonstration aroused much interest.

At 10 a.m., under the chairmanship of the Government Entomologist, a paper was read by Malay Probationer Inche Mohamed Yusop on "Some Insect Pests of Padi."

At 11 a.m. a paper on "Methods of Controlling Rats in Bendangs" was read by Malay Probationer Inche Uda, who described the use of poisons, of carbon bisulphide and of traps. The discussion emphasized the need of planting padi so that it all ripened together and not little by little, and also of general action by all when attempts are made to destroy rats.

At noon a paper followed on "Insect Pests of Coconuts" by the Insectary Assistant, Mr. D. Ponniah. This was translated into Malay and read by the Senior Agricultural Assistant, Raja Mahmud. Details of the life-history of some of these pests were given, with notes on some of their natural enemies and suggestions for their control. A short discussion followed.

The proceedings were closed by a short speech by the Director stating that he hoped to hold similar conferences at least annually in future. This was followed by a vote of thanks to the Director of Agriculture and the Chief Agricultural Inspector for organizing the conference.

PADI VARIETIES AND PADI BREEDING.

By Raja Mahmud bin Raja Ali,

(Senior Agricultural Assistant to Economic Botanist, Department of Agriculture, F.M.S., Kuala Lumpur).

MR. South, the Chief Agricultural Inspector, has asked me to give you a lecture on "Padi Varieties and Padi Breeding." This subject, however, represents so many phases that it would be impossible to do it justice in the brief time at my disposal. I propose, therefore, to confine my remarks to the more fundamental points in so far as my knowledge of padi in this country is concerned. For the sake of facility, I divide the subject into two parts, viz.—Part I, "Varieties," and Part II, "Breeding".

Part I.—Varieties.

There are several species of the genus *Oryza*, the family of grasses to which the rice plant belongs, but the species of greatest importance to mankind is *Oryza Sativa*, i.e., the common or aquatic rice plant, of which there are a great number of cultivated varieties. These plants probably derived their origin from the wild plants which were found growing naturally in swampy places in Southern India and Indo-China. Other kinds of wild rice have also been found in Borneo, tropical Africa, North Australia and South America.

The cultivated rice plant is an annual whose stem varies in height from 1 to 7 or more feet. The leaves are linear, being 1 to $2\frac{1}{2}$ feet in length and varying from $\frac{1}{2}$ to $1\frac{1}{2}$ inches in width. They are either smooth or bristly according to the variety, and pubescence varies on either surface of the leaves in many cases. The flowers are produced in a one-flowered spike, in panicles from 8 inches to about $1\frac{1}{2}$ feet in length, that are at first erect but become arched with weight of the grain at maturity. The two flowering glumes are persistent, forming the husk of the grain, and in certain varieties the lower glume is provided with a stiff hair of varying length called the awn, or "ekor padi" as it is termed by the Malays.

Rice is not only the most important cereal in the East but ranks highly as one of the most important food-plants in the world, for it is the staple food of more than one half of the world's population. The world's crop of cleaned rice is over 100,000,000,000 pounds, of which about 65,000,000,000 are produced in British India, 14,000,000,000 in Japan, 12,000,000,000 in Java, 3,000,000,000 in Siam, 2,000,000,000 in Korea, 1,500,000,000 in the Philippines, 1,500,000,000 in Formosa, 1,200,000,000 in the United States of America, nearly 1,250,000,000 in Italy, 750,000,000 in Egypt, 500,000,000 in Spain and smaller quantities in other countries.

The Federated Malay States only produce roughly 250,000,000 pounds from a total area of approximately 185,000 acres.

Several attempts have been made by eminent botanists to classify the numerous forms of cultivated rice. One of the most noteworthy publications on the classification of rice is the work of Kikkawa in Japan. In his work two schemes of classification are given. The first divides the rice according to agricultural characters, the second by the characters of the grain.

Graham, in India, classifies his rice according to time of ripening, water requirements, etc. Roxburgh, on the other hand, in classifying the Bengal rice, recognizes only early and late rices, and there are many other botanists who are making various classifications according to their own ideas, but so far as I am aware not a single scheme has yet been of sufficient scope to merit permanent recognition.

Broadly speaking there are two general groups of rice—wet and dry. The latter is grown without flooding or artificial irrigation but the former is grown only under a flooding system.

The primary grouping into wet and dry, or as commonly called in other countries, lowland and upland, is recognized in most rice-growing countries, but according to Kikkawa some of the so-called upland rices grow and yield better in flooded fields than in ordinary fields, and in India there are certain wet rices that only need flooding during the germinating period. Similarly, in the Federated Malay States some of the dry varieties can be successfully grown in the "bendangs" and *vice versa*, e.g., Radin Puteh from Krian: hence it will probably be impossible at present to draw a hard and fast line between these two groups.

The grouping of the varieties into early and late kinds is also a familiar classification for practical purposes in all rice-growing countries. In Japan, India and elsewhere, where climatic conditions are favourable and the necessary water supply is available, it is possible to raise two or even three crops during the year. Thus in India, the "Aus" or early autumn rice is sown in April-May and is harvested in July-September; the "Boro" (*rabi*) or spring rice is sown in October-November and cropped in May.

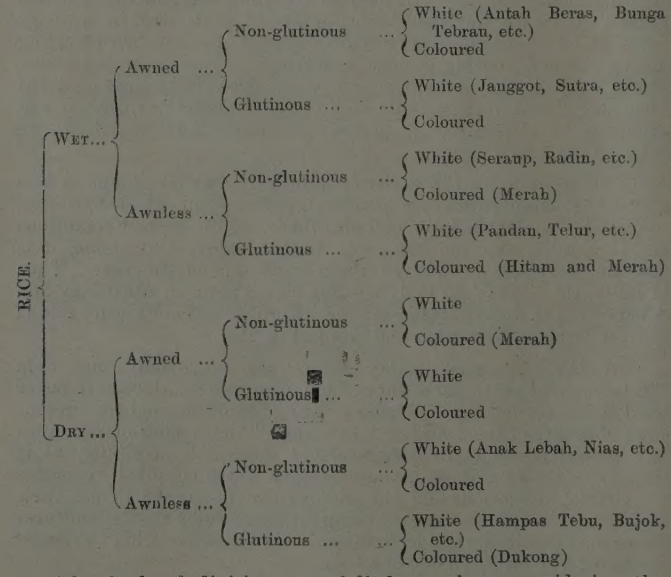
In the Federated Malay States we have only one crop throughout the year, and so far as I am aware, the natives have never tried to raise two crops. Under existing conditions and the present state of affairs of the Malayan "bendangs," the raising of two crops in one year seems to be a failure, but there is a possibility of it if early varieties are used, the necessary water supplied by means of artificial irrigation, and the Malays can be roused to use their energies. This problem is still being investigated by the Agricultural Department with a view to finding a suitable proposition in regard to raising two crops during one year.

Here in the Federated Malay States as well as in other countries, the time of sowing varies with the district and may differ according to variety, but in most cases all varieties in one district are sown more or less at the same time. The early varieties ripen in from $4\frac{1}{2}$ to 6 months and the late ones from $6\frac{1}{2}$ to 8 months. There is also a special variety called "Padi Sa-ratus Hari" which ripens, as its varietal name designates, in a little over three months, but this particular variety is gradually disappearing owing to the difficulty of getting its seed.

As mentioned above, the varieties of rice are innumerable. In Bengal alone more than 4,000 varieties have been reported and many more are found in other countries. In the Federated Malay States over 1,000 varieties are said to exist; many of these are similar, differing only in name in different districts and therefore, with the present paucity of knowledge and data, it is quite impossible to estimate the number of really distinct varieties. It is hoped that when the Department is fully equipped with its scientific staff, the work on classification of the local rice will be renewed and accurate records published. For the present, however, the following scheme may serve as a useful guide in classifying the different varieties of rice in this country.

First of all, the varieties are divided into two large classes, according to adaptability, i.e., wet and dry. Each of these is sub-divided into two classes according to the presence or absence of awn. These in turn are further divided according to composition of kernel as glutinous or non-glutinous, and the resulting classes sub-divided into others according to colour of cuticle.

The classification is tabulated below:


RICE.
Wet ...
Awned ...
Non-glutinous ... White (Antah Beras, Bunga Tebrau, etc.)
Non-glutinous ... Coloured
Glutinous ... ... White (Janggot, Sutra, etc.)
Glutinous ... ... Coloured
Awnless ...
Non-glutinous ... White (Seraup, Radin, etc.)
Non-glutinous ... Coloured (Merah)
Glutinous ... ... White (Pandan, Telur, etc.)
Glutinous ... ... Coloured (Hitam and Merah)
Dry ...
Awned ...
Non-glutinous ... White
Non-glutinous ... Coloured (Merah)
Glutinous ... ... White
Glutinous ... ... Coloured
Awnless ...
Non-glutinous ... White (Anak Lebah, Nias, etc.)
Non-glutinous ... Coloured
Glutinous ... ... White (Hampas Tebu, Bujok, etc.)
Glutinous ... ... Coloured (Dukong)

The final sub-divisions are of little use here, considering the coloured varieties are rather objectionable and besides there are not many grown in this country.

The Malays, though they have no systematic classification divide their rice practically in the same manner as above, but two other special qualities are recognized—"Berat" and "Ringan." The former is a heavy kind, that is, one which requires some $6\frac{1}{2}$ to 8 months to ripen, e.g., Serendah, Seraup, Machang, etc., and the latter less than six months (e.g., Puteh, Radin, etc.).

On account of their long experience in rice-planting, some of the Malays are exceedingly clever in identifying the different varieties of rice by a mere glance at the grains. To an inexperienced observer this will undoubtedly be difficult, but some of the following points may be helpful, if carefully noted, in determining the different varieties of rice:

(1) Shape and colour of grain (padi);
(2) Colour and condition of kernel;
(3) Colour of grain tip;
(4) Colour of empty glumes;
(5) Presence or absence of awn;
(6) Colour of awn, if any, and also length.

The identification of glutinous and non-glutinous rice is simple. To an experienced observer a mere glance at the grains will be sufficient. The grain of glutinous rice when fully ripe becomes quite opaque and shows a chalky white colour and when cooked, it becomes much more transparent and sticky than a non-glutinous type.

It must be understood that rice is a very unique plant, as each variety requires its own especial conditions. It is most susceptible to the influence of climate, soil, water-supply, and many other environmental factors.

The varieties of rice differ in size, shape, weight, colour of grain, length of maturation period, production power, culinary and milling qualities, chemical composition, etc.

The chief varieties of rice grown in the Federated Malay States are tabulated below, approximately in their order of importance from the point of view of quantity produced. The table is divided into wet and dry padi, and shows the district in which each is commonly grown:

WET.

	Name.	Where grown.
1.	Seraup	Chiefly in Krian district.
2.	Radin	,,
3.	Serendah	,,
4.	Bujang Melengong	,,
5.	Bunga Machang	,,
6.	Pahit	,,
7.	Riong	,,
8.	Anak Ikan	,,
9.	Mayang Sakepol	Chiefly in Upper Perak.
10.	Chantek	,,
11.	Rantai Perak	,,
12.	Mayang Kuning	,,
13.	Bemban	,,
14.	Sisek Negri	,,
15.	Pasang	,,

NOTE.—Pahang is excluded.

WET—(*cont.*)

	Name.	Where grown.
16.	Lebat	Chiefly in Kuala Pilah.
17.	Trong	,,
18.	Nachin	,,
19.	Sabangsa	,,
20.	Santap	Chiefly in Ulu Langat.
21.	Asahan	,,
22.	Antah Beras	,,
23.	Kuku Balam	In most rice-growing districts.
24.	Lentik Kunyit	In Northern Perak.
25.	Raja Bersanding	,,
26.	Mayang Rotan	,,
27.	Serbok Mas	,,
28.	Radin Che' Mah	,,
29.	Jangkir Ayam	,,
30.	Jintan	,,

DRY.

1.	Anak Lebah	Sub-district of Sitiawan.
2.	Nias	Ulu Bernam.
3.	Kala	Selama.
4.	Rami	,,
5.	Alin	Ulu Selangor.
6.	Arak	Kuala Kangsar.
7.	Lekon	Ulu Bernam.
8.	Asam Kumbang	Kuala Kangsar.
9.	Taring Pelandok	Upper Perak.
10.	Pasang Kurau	,,
11.	Beruang	,,
12.	Tungkat	,,
13.	Padang Malaka	,,
14.	Rambut	,,
15.	Jambak	,,

The work on rice in this country is still in its infancy, and therefore no correct information of each variety can be given with respect to its maturation period, yielding power per acre, etc., except those varieties which have actually been tested in our breeding plots. It is also quite useless to attempt to give a long list of names of the padi samples which have been collected and kept in the Department, for most of them are not yet fully investigated. It may be mentioned however, that some 1,500 samples have been collected from all over the Federated Malay States, and of these, records have been compiled for some 300 varieties to show general characters, etc. The different names of padi as given in the vernacular are very numerous and many of them are very descriptive of the actual appearance of the grain or of some particular quality attached to it. For instance

Padi Gading = ivory, Padi Pahit = bitter, Padi Janggot = awned. Each variety is liable to be called under two or more names. For example, Padi Serendah of Krian and Padi Banjar of Setapak (Kuala Lumpur) are identical and are probably from the same origin, likewise Padi Radin of Krian and Padi Puteh of Negri Sembilan. As soon as a certain variety of a district or mukim is introduced into another, its name is likely to undergo change, probably because its appearance produces a different mental effect on the people of the new district who name it accordingly. Take for instance the Padi Serendah again. This variety has no less than five names. In Setapak (Kuala Lumpur) it is called Padi Banjar, in Kajang it is called Padi Serendah, in Kuala Kurau (Perak) Padi Serendah Lanjot, in Slim (Batang Padang district) Serendah Singkat. And there are many other examples which I need not mention here. The Malays are not to blame; they are probably right to a certain extent, as we are aware that many varieties of padi are liable to fluctuation in yield and rapidity of growth due to change of soil, climate, etc. The word "lanjot" means extended, and the word "singkat" means short, or brief. Therefore the additional name is not without meaning, for the Malays have probably found that, in growing the Padi Serendah in their locality (Kuala Kurau), the maturation period of this variety extended beyond $6\frac{1}{2}$ months, or in case of "singkat" as the Slim grower called it, took only about 6 or $5\frac{1}{2}$ months to ripen: hence the difference and variation of names. Again, this same variety is also sometimes called Padi Rendah probably on account of its short growth (about 3-4 feet high). Thus one variety of padi may have several different names and as mentioned above, it is rather useless at present to give a long list of the different names of padi.

Some special varieties of rice.—In the Federated Malay States some special varieties of rice are found, the most noteworthy ones are the clustered and the coloured varieties. There are about three different varieties of the former and probably half a dozen of the latter

The three varieties of the clustered padi are as follows:

(1) Padi Karang Bunga which is found in Batang Padang district, Perak;

(2) Padi Bunga Buloh which is found in Kota Lama Kiri district, Perak;

(3) Pulut Dukong (black grained) which is found in Batang Padang district, Perak.

All these varieties are planted on the upland and they differ from the ordinary varieties of padi by having two or more grains on each rachis.

Among the coloured varieties, Pulut Hitam (black grained of the glutinous type) is the best known, and in fact it is one of the favourites of the Malays. It is used for making cakes or puddings, and is very commonly grown for such purposes. Another variety is Padi Merah (with several alias names), the kernel of which is red.

Part II.—Breeding.

As the time at my disposal is brief, I must proceed at once to the second part of the subject of my lecture, i.e., "Padi Breeding." This is one of the most important studies in general agriculture and I therefore strongly recommend that every one of you who is really keen on agricultural pursuits, should take up the study of plant-breeding in the hope of either benefiting yourself or your next generation. I have very little time to relate to you the various benefits derived from the acquirement of this science, but it will suffice if I mention a well-known adage :

> "He whoever could make two ears of corn or two blades of grass to grow upon a spot of ground where only one grew before, would deserve better of mankind, and do more essential service to his country, than the whole race of politicians put together."

It is known in agricultural science that any plant, whether padi or coconut, or rubber, can be improved just in the same way as animals, i.e., by breeding. The art of breeding cattle, horses and other domesticated animals was started many, many years ago, and to its successful results the present science of plant-breeding is mainly due.

In Europe and America hundreds of scientific men are engaged on the studies of plants and animals. Among the oldest and most famous were de Candolle, Darwin, Gregor Mendel. These great men were among the first who took up the important study of plants in relation to their origin and heredity. The modern workers include such men as Bateson, Biffin, Richardson, Nilsson, Pearl, Bailey and many others.

The idea of improving the grain crops only seems to have originated after the beginning of the last century. It happened that le Coutour, an English breeder who lived in Jersey, made some experiments in wheat culture. He saved seed separately from individuals of his wheat plants and tested the progeny of each, but unfortunately he did not seek to further the improvement, though he found the offspring came pure to the type of the parent, each to each. Probably he was unaware of the extreme importance of his work.

Shireff in Scotland, working on the same line as le Coutour, became very successful in the end by producing heavy-yielding types of wheat and also oats which have maintained their quality. There were many other breeders who made various investigations in connection with the improvement of cereal crops. The best known recent discovery in the science of plant-breeding is that of Nilsson's in Sweden. Working on wheat and other kinds of cereals at a place called Svalof, he made an unexpected discovery which led to the beginning of the new era in plant-breeding about 30 years ago. He discovered that commercial samples of wheat seed were composed of many elementary strains and that a plot of wheat which had been grown from one ear, ripened evenly and that every ear was exactly similar to the parent ear, and thus began the new method of pure-line breeding from elementary strains. He then established the renowned breeding stations which have placed Swedish workers in the fore as plant-breeders, and have enormously increased the production per acre of wheat, oats, barley and rye in that country.

Professor Biffin of Cambridge has produced most of the best varieties of wheat and oats now grown in the British Isles by his investigations and experiments based on Nilsson's methods. Similarly, Richardson of Australia has produced several heavy yielding strains of wheat which, after multiplication and distribution, have increased the production very considerably and thus greatly raised the profits of farming.

Now we have seen how the science of plant-breeding has helped us in improving the yield and quality of our cereal crops, and therefore it is desirable that the padi crops of the Federated Malay States should also be improved on the same lines.

The object of padi selection and breeding is the production of strains or varieties that are better adapted to specific conditions or have a greater yielding capacity than varieties already in use, or supply definite requirements such as a good milling rice, which gives a smaller percentage of broken grains in milling than a poor milling rice.

Most padi growers in this country use any padi seed of any favoured variety and without practising any selection. The seed which is usually used is either taken at random from the field or bought in local shops, and is, in most cases, badly mixed and of very low quality. Most of the seed which is picked from the field is immature, or is from plants of inferior quality. These careless practices on the part of the Malays form a part of the main causes of deterioration in padi as is obviously seen in the condition of their crops, and one of the most striking results is the disappointingly low yield. Even the most promising varieties would deteriorate unless some attempt was made to propagate their good qualities, for it must be borne in mind that on the seed depends the crop.

On examination of any padi field in this country it will be found that it consists of a mixture of types differing in quality, maturation period, vegetative characters, productive power, etc. Some of these types are pure and therefore, breed true; others are impure, i.e., they are the products of natural crossing and consequently they are unreliable, and must not be used for seed purposes.

There are at least three methods of breeding which can be more or less applied to the improvement of padi—(i) by careful and systematic individual-plant selection and progeny testing of superior plants; (ii) by hybridization or crossing different varieties or species and (iii) by acclimatization of approved or superior stocks of one country or locality in another.

The Improvement of Padi by Selection.

As the native fields contain mixed and impure varieties of padi, the first step is to grow as many local varieties of each class as can be procured from these fields, but in picking the seed care must be taken to note the distinct types, and this is best done while the crop is still standing, each type being represented by the ripe ears taken from a *single* plant.

The next step is to grow the various lots of seed thus obtained in small plots by the ear-to-row method, first with the object of testing which of these types are constant, and therefore pure, and which again split as the result of previous crossing, and secondly,

with the object of comparing the pure types in regard to productive power and other characters. This preliminary process is known as pure-line testing of varieties.

In the conduct of pure line testing it is necessary to space the lines some four feet apart in order to obviate the chances of natural crossing which, in ordinary field crops, takes place to a very slight extent.

The next step is to take sample plants from lines which prove pure and grow them a second or even a third time (in case of destruction by flood or any other misfortune) in order to confirm the result of the second season as to their respective merits. Should the tests confirm the utility of the pure line, whether it be for its yielding capacity, its length of straw or other defined character, it may then be multiplied and tested on a larger scale under varying conditions in different districts.

In this way, at the end of the fourth or fifth season, we should be able to fix upon one or more of these pure lines as being more prolific and of better quality all round than the rest within their own class. The next and last step will be to multiply the selected pure lines on a field scale for the purpose of distributing the produce as seed.

The Use of Hybridization in Padi-Breeding.

Little success has yet been attained by the Department with this method, though a few experiments were made in Krian, mainly with a view to ascertain the conditions of natural pollination.

Hybridization opens a wide field of possibilities for the breeder of experience who has the requisite patience and perseverance.

By hybridization is meant simply the process of crossing plants of different varieties or species, with a view to securing, where selection fails, an entirely new combination of factors in a single individual which may bear special desirable characters not evident in either parent plant. We are aware that among the vast number of the varieties of padi there is hardly one which has all the desired characters, e.g., high production power, pleasant flavour, good milling quality, disease resistance, etc. As we say every man to his taste, so with plants.

For quick results, selection offers much greater possibilities than hybridization and consequently it must necessarily precede hybridization.

Acclimatization.

If we procure some plants say from India or Java and grow them here, it is then said that we are introducing them; and later on when these plants have grown well and become adapted to the local conditions, they are then said to have become well acclimatized. Therefore, by acclimatization is understood the process of introducing a plant or plants from one climatically different country or district to another.

This method of improving padi is the least hopeful for it has been found in Krian that several introductions of high-yielding capacity from India, Siam, Java and the Philippines have proved quite inferior to the best local varieties. However, results of considerable value have been obtained in other countries, at least partially, by this method.

Before introducing any kind of plant it is necessary that a careful study of both the original and the proposed country or locality should first be made, especially when the introductions are brought from distant regions with widely different climatic and other conditions.

Acclimatization is not an easy process and its success depends chiefly on the question of climate, soil, etc. It is difficult to acclimatize plants of the temperate zone in this country but it is not so in case of plants, say, from Ceylon. The Para rubber tree is a good example. The original home of this tree is in South America, in Brazil. By acclimatization, it has become well adapted to this country, though Brazil is many thousands of miles away from the Federated Malay States.

General.

Plant-breeding is a science involving both theoretical and practical studies which are of so considerable importance that nothing can be made complete in a lecture, nor in a written paper of this size. To acquire knowledge to an appreciable extent, various books should first be studied and kept ready for reference purposes. It comprises so many nature studies that not only the plant itself is of immediate importance, but there are also the soil, climate and many other environmental factors which are to be considered. Some of the most important subjects which are included in the art of plant-breeding are botany, chemistry, plant physiology, genetics, and a study of all the modern publications, leaflets and reports of modern and up-to-date workers in connection with this scientific branch of agriculture.

Having acquired all the essential principles in regard to the subject it is then desirable to apply those principles to practical work in the field, or in other words to make a breeding experiment. It is here that various factors play an important part. In doing any sort of experimental work, especially breeding experiments with rice, there are several matters to be taken into consideration, e.g., we should pay the greatest attention possible to everything that concerns not only the plant but also the uniformity of soil on which the experiment is made, water-supply, environmental factors, size of "lopaks" or divisions of the padi fields, etc. The question of "probable error" plays an important part in this, for if the system of experiments is not of the nature favourable to the "law of experimentation," all the results may be misleading.

In breeding padi the breeder should have good judgment and power of observation. These combined with time and patience will assure success. To accomplish the best results possible it is essential to understand and carefully note something about the manner in which characters are inherited from the original plant, that is the parent, to be well acquainted with the characteristics and variability of the plants and also to understand what characters are specially required by the markets, or desirable from some other point of view.

MOULDY ROT.

(Disease of Recently Tapped Bark.)

By Mohamed Amin,

(*Junior Agricultural Assistant, Seremban, Negri Sembilan.*)

THERE is at present a rubber disease known as Mouldy Rot which attacks the renewing bark of rubber trees usually about one inch above and parallel to the tapping cut. The causal fungus is one of the Sphæronema species.

Symptoms.

The disease attacks a tree starting with small depressed black spots on the surface of the renewing bark which eventually spread and form one whole black diseased area which is soon covered with a greyish bloom. This bloom is easily seen from a distance, especially in a wet season.

At this stage the disease has penetrated into the wood to a depth of about one-eighth of an inch. When the dry season sets in the diseased area sinks in, drys up and crimples; finally, drops off, exposing the wood similar in appearance to wounds caused by tapping knives.

Places Attacked.

The disease begins its attack during a wet season and has a liking for places where moisture is always present. Such places are, poorly irrigated level land, valleys, lands near the margins of streams, and places where the trees are closely planted. Besides, dirty land overgrown with weeds has also its share. Hilly land is seldom if ever attacked, but if the disease has started at the base of the hill which may be a valley or lying near any stream, the disease will slowly spread upward. Areas where tapping is bad facilitate attack.

Agencies for its Spread.

One of the agents for the spread of this disease is the tapping knife. When a coolie taps a tree his tapping knife comes in contact with the affected part, thereby getting the active spores (fruit of the fungus) transferred to his knife, with which he goes to tap another tree leaving some of the spores there. These spores soon germinate causing another tree to be attacked. In this way numerous trees are infected in a day.

The coolies' hands, the scrap bags, collecting buckets, etc., play no little part in the distribution of this disease. Wind and insects are probably also agents for the spread of Mouldy Rot.

Treatment and Prevention.

It has been found that the following fungicide has been successfully employed in combating the Mouldy Rot disease in native holdings:

Take 10 per cent. tar and add a solution of 25 per cent. Brunolinum Plantarium and 65 per cent. water.

With the above mixture, all the trees, whether attacked or not, in the infected "tasks" must be painted once a week or once a fortnight. (Ten per cent. Agrisol is an effective substitute for the above mixture).

A weak solution, say of 10 per cent. Brunolinum Plantarium can be employed in the unaffected areas.

Beside the above actions the following measures are imperative for the successful eradication of the disease:

(1) Paint carefully with the above fungicide the affected tapped surface, the cuts included;

(2) Tapping should be stopped in the infected tasks;

(3) Wet trees in infected areas must not be tapped until quite dry;

(4) Thinning out should be carried out in closely planted areas, say, 120 trees to the acre in areas where the trees are less than ten years old, and more thinning out should be done in areas above this age.

(5) All tapping utensils such as tapping knives, latex cups, spouts and collecting buckets must be disinfected with a solution of Izal. Scrap bags must be burnt and replaced by new bags;

(6) The land must be kept free from weeds, so as to allow the sunrays to reach the ground to evaporate the undesirable surface moisture which encourages fungoid growth;

(7) Rubber, timber, etc. after the thinning out, must not be carried away to other places—they are to be heaped and burnt off;

(8) On recommencing tapping of the rested infected area a new plan at least two inches below the old tapping cut, or on the other side of the tree, must be made;

(9) Preventive painting with a weak solution of Brunolinum Plantarium, say 10 per cent., should be carried out fortnightly throughout the estate and especially should it be done during wet weather.

PADI CULTIVATION IN PAHANG.

By Syed Abdul Rahman,
(*Junior Agricultural Assistant, Pekan*).

THE following are the ordinary methods of padi cultivation in the State of Pahang:

(1) Padi "Chedong"
(2) „ "Tenggala"
(3) „ "Tabor"
(4) „ "Tugal"
(5) „ "Simbah"

Padi "Chedong" (Swamp Rice).

Nursery.—The preliminary operation is the preparation of a nursery bed which is usually made on dry land. A suitable place under heavy secondary jungle growth (blukar) is selected and after felling and burning all the secondary growth the land is cultivated to a depth of about 2-3 inches, the soil being well stirred and reduced to a fine tilth. The seed after being soaked in water for a night is broadcasted on the nursery bed and covered lightly with earth to protect the seed from birds, etc. The quantity of seed used is $3\frac{1}{2}$-4 gallons (i.e. 17-20 lbs.) to an acre of land. The Malays use "blukar" land for the nursery because such land is rich in humus and also supplied with plant ash—the result of burning off the growth. The seedlings are transplanted after 44-60 days of growth in the nursery.

When the nursery bed is completed and planted, all the tall weeds in the padi field are cut down and the "batas" (division in padi fields) repaired. Then a herd of buffaloes is driven into the field to trample down all the weeds till they are submerged in the mud. This work is repeated once in 7-8 days till all the weed masses, etc., are decayed in the mud.

Transplanting.—When the field is ready, the young plants in the nursery bed are pulled up and placed in bunches, care being taken to select only good seedlings. These bunches are sub-divided into smaller bunches, each usually as large as a handful, and all the top parts of the plants flushed off. The number of plants per "hill" varies from 3-4. The distance of planting is from about 12-18 inches apart.

Varieties.—The common varieties of padi which are generally grown here are those that have a growing period of $6\frac{1}{2}$-$8\frac{1}{2}$ months. The latter are preferable owing to their capacity of tillering, and besides, they are in some cases disease resistant.

Harvesting.—In reaping padi the harvester holds a small knife in his right hand, cuts the ears and gathers them in his left hand. Each handful of ears is tied with straw and put in a basket, which is hanging over the left shoulder. After harvesting the crop, some

people store the padi in ears, while others store after cleaning the padi from the ears. They separate the seeds from the ears by stamping on them and then winnowing. Hired labour is general, the labourer being paid according to the success of the crop. Payment is in kind, generally two-fifth of the crop going to the harvester. When harvesting is difficult, owing to over-ripeness, the payment is often two-third of the crop.

Padi "Tenggala."

Preparation of Land.—The type of land which is used for this method of cultivation of padi is jungle land. After the land is cleared and the surface timber removed, the padi planters begin to cultivate by means of "tenggala" (a wooden plough driven by buffaloes), and they term this first ploughing "membeloh." The land lies fallow for a month, to decay the vegetable matter. The second cultivation is crossploughing, i.e., the direction of ploughing is in the opposite direction to the first ploughing. When the second ploughing is completed they leave the land again for another month. By these operations the land has been well stirred, and grass and weeds destroyed. When this is over they start the third tenggala, which follows the direction of the first ploughing and is known as "melampan." When the third operation is finished they start raking the land in a circle from the boundary to the centre of the field. This breaks down the larger lumps of soil. After raking they sub-divide the field by lines 12 feet apart and these sub-divisions assist the sower by ensuing an equal distribution of seed over the area. The seed padi is soaked over night and early next morning broadcasted. After sowing, the land is lightly ploughed and raked so that the seed is turned into the soil.

When the seedlings reach the age of 6 or 7 weeks, the Malays of Kuala Lipis weed by hand, but weeding is not a custom in the "tenggala" district of Pekan. The rate of sowing in Pekan is from 8-10 gantangs of seeds per acre, and in Kuala Lipis, 5-6 gantangs per acre. The Pekan planters say that heavy sowing reduces the growth of weeds, while the Lipis planters, maintain that weeding interferes with the growth of the padi. By comparing these two points I do not agree with the reason given by the Pekan planters, as I know that their seed is not so good as the Kuala Lipis seed, only producing a few tillers. By weeding, the planters of Kuala Lipis give the padi more room for tillering and reduce the amount of damage occasioned by insects.

Padi "Tabor."

The type of land chosen for padi "tabor" is the abandoned fields of padi "paya chedong." In places, the Malays are unable to cultivate paya-chedong owing to lack of water during part of the season. The cultivation is rather similarly carried out to that of "tenggala."

The seed used however is that of padi "paya-chedong" as when the floods come the land once more becomes a swamp. The amount of seed used per acre is 6-8 gantangs. This method is only carried out in the district of Pekan.

Padi "Tugal."

The type of land chosen is virgin jungle and after burning the jungle and the removal of surface timber, the field is fenced. Holes are made in the soil by means of a sharpened stake, the distance between holes being about one foot. The amount of seed put in each hole is as much as the thumb and the fore finger can hold, it is then covered by hand. The amount of seed used is about 5-7 gantangs per acre. Five months' padi is used in this method of cultivation. When the seedlings reach the age of 40 days the land is weeded. Harvesting the crop is similar to that of padi "Tenggala." This method of cultivation is general throughout the State of Pahang.

Padi "Simbah."

When the jungle land is cleaned, seed of "paya-chedong" is broadcasted at the rate of 4-5 gantangs per acre. Before planting the seed is steeped in water for a night. The large timber lying about the field is hammered so that the seed lying on it falls to the ground.

METHODS OF IMPROVING SMALL HOLDINGS.

By Raja Mahmud bin Raja Ali.

ALL of you Malay officers who are present at this conference are no doubt aware of the fact that the condition of the majority of the Malay "kampongs" found in the Federated Malay States is far from satisfactory. I have been requested to give you a lecture on the above subject and I hope earnestly that all of you will pay attention to what I am now going to say, and that when you return to your district you will disseminate the knowledge thus gained, among the "kampong" Malays and others interested in agricultural pursuits.

I.—Present Condition of Malay Holdings.

(*a*) *Mixed Crops.*—The majority of the Malay holdings are not large, each owner being in possession of 2-3 acres of land in a single lot. On examination of these holdings it will be found that they consist of all sorts of plants planted very close to each other irrespective of kinds, and forms.

The principal plants found in these Malay holdings are coconut, various sorts of fruit trees such as durian, pulasan, rambutan, and also many others. Now, owing to the attractive and high price of rubber, most of the Malays have altered their ideas—many of them have planted rubber, and in order to make an opening for this new venture, they have ruined their kampongs by cutting down their coconuts and fruit trees: hence the cause of the gradual disappearance of valuable fruit trees in this country.

This improvident action on the part of the Malays is indeed most regrettable, but thanks to the timely interference of Government the destruction of coconut trees has been prohibited by legislation. Had this not been done, most of the coconuts in the Malayan kampongs would probably have disappeared by now. I trust similar action may also be taken with respect to fruit trees.

In some cases the Malays did not destroy their kampong trees, but nevertheless rubber was planted in the narrow space between the scattered coconut or durian trees, resulting in a bad appearance and a chaotic condition of the holdings. These people thought that by increasing the number of trees on their land they would gain greater advantage, not knowing in the least that, in doing so, they were practically ruining their holdings. The coconuts would in time be choked up by the rubber, and in fact all the trees thereon would become useless as most of them would not bear any fruit. With regard to the rubber, it would probably be several years before the trees were fit to be tapped, as their growth must necessarily be slow, owing partly to the exhausted nature of the soil and partly to the heavy shade above them. However, the Malays did not care to wait until such trees were fit to tap, and they tapped their rubber trees with the sole idea of getting what they thought "double returns," that is, the fruits and the rubber, from their holdings. In my experience (I have often seen and met with such cases) I have found that many of them failed to secure the much expected returns,

because their kampong trees very rarely bear fruit, due to several causes which I need not enumerate here, and as to the rubber trees, the yield is low owing to the small size of the trees when first tapped and their poor growth. But now I have often heard that the kampong Malays have repented their previous rash act, and I have personally seen that some of them have actually cut down their rubber trees in order to improve their coconuts. In so far as native agriculture is concerned, I should recommend that every Malay planter divide his three acre holding into two separate parts or blocks. The one about two acres can be planted with rubber alone and the remaining one acre with coconuts and fruit trees spaced out nicely according to the kind and habit of the individual plant. In this manner he will have his rubber (if he is really keen on rubber) and also his coconuts and fruit trees properly arranged and planted, care being taken of course not to include anything else in the rubber block. He should also attempt to grow some foodstuffs for his own consumption, and for this purpose a small block, say a quarter of an acre, should be reserved. The planting in all cases must be done properly, care being taken to have the seeds or planting material well selected, and when everything is complete, the upkeep and subsequent maintenance of the holding should be assiduously attended to. The result will, I am sure, be satisfactory and far better than the present chaotic condition of the holdings as commonly seen throughout the Federated Malay States.

Besides the mixture of several kinds of plants usually found on Malay holdings there is one deplorable matter that cannot fail to arrest our attention, that is, their weedy and dirty condition. Noxious weeds, lalang and blukar are to be met with everywhere. Moreover, in certain parts, many of the holdings are water-logged, obviously due to lack of proper drainage. We all know that these things, if allowed to continue on any agricultural holding, will not only retard the growth of the trees that are planted thereon but will also probably kill some, if not all, of them. Therefore, it is most advisable that the holdings should be kept clean and, if practicable, have their soil changkolled at least once or twice a year so as to enable the roots of the trees to make their way into the soil in search of food, and, what is more important, to make what we call "soil æration" more effective. The application of lime is also beneficial, especially when the soil has been well stirred and turned over.

Another thing which has a harmful effect and which is often seen on native holdings is the various kinds of parasites usually seen on durian or pulasan trees. The Malays know very well the injurious effect of these parasitic plants but still they seldom take any notice or care to remove them. And here I must say that the natives are really lazy.

(*b*) *Pure Crop of Coconuts.*—This term is simply employed to mark a distinction between the common Malay holdings usually found in the interior of the country and those in the Coast districts where coconut cultivation still ranks as of first importance to the natives. Here the method of planting is somewhat better, the trees being laid out in rows and well spaced out, but their general conditions are more or less the same. We all know that good drainage is essential in coconut cultivation, but the Malays seem to pay very little attention to this and consequently many of

their "kebuns" are water-logged, resulting in a condition harmful to the trees. With regard to weeding, this is held in abhorrence by the Malays (except probably by the Javanese). They say that the main reason why they prefer coconut planting to rubber is because the former gives less trouble to them in upkeep and handling of the products than the latter. Quoting their own saying in this connection would perhaps confirm the truth as to their negligence in weeding their coconut "kebuns." "Tĕr-lĕbih baik bĕr-kebun Kĕlapa dari pada Gĕtah sĕbab kĕbun Kĕlapa tiada payah di-bĕrsehkan rumput atau sĕmak [2] nya dan buah nya masih juga sĕnantiasa dapat di-pungut." From this, it will be clearly understood that it is their general policy in coconut cultivation that weeding or eradication of any other form of undergrowth is not to be taken much into account; in fact, all work pertaining to cleanliness or sanitation is entirely ignored.

They are quite mistaken here. It is true that coconut trees are hardy plants, and will bear fruit in spite of the weedy and dirty condition of the land on which they grow, but nevertheless, as is well known to us, such a condition will, in time, certainly be injurious to the trees. As sanitation is essential to our health so it is to the health of plants.

Another bad pest usually found on coconut holdings is beetles, which most of you must know. These beetles can easily be eradicated if the Malays can be roused to use their energy by keeping their holdings clean andfree from rubbish heaps, cowdung, dead stumps, etc.

(*c*) *Pure Crop of Rubber.*—In rubber cultivation the Malays have no real knowledge whatsoever as to method of planting, thinning out, tapping, and coagulating the latex. Though at present there are a great number of Malay rubber holdings in this country, yet I have not seen one that could boast of its appearance, or compare favourably with that of a Chinese holding. The first striking thing to be observed is the method of planting, then comes the system of tapping, and finally the finished latex sheets as they are occasionally seen hung up on poles or on the railway fence to dry in the sun.

In planting out their rubber trees the Malays usually adopt the "greedy-system," that is, they plant as many trees as an acre of land can hold, ranging from 200 to about 500 trees. Thinning out is almost unknown, and those who have been advised of the benefit and subsequent advantage of the operation, object to the idea of cutting down their trees.

As to method of planting, they have their own individual wishes as their guide. Those who have a habitual taste for show or order will perhaps plant their trees in rows or lines, while the rest of them will simply force the stumps into the ground as they go along just as they do in dry-padi planting.

Seed selection, or choice of good stock, is absolutely unknown.

Tapping is generally started in the fourth year after planting and, in some cases, much earlier than that, with the result that many of the trees are spoilt, their growth being retarded owing to the drastic tapping of the greedy or ignorant Malays. With respect to clean clearing and other practices of modern agriculture there is nothing much to say except that the conditions are very much the same as described under (*a*) and (*b*) above.

So far the above description is a mere outline of the actual conditions of the Malay holdings in this country, and I think it is unnecessary for me to go any further in that part of the subject as most of you here, being inspecting officers, have no doubt seen the actual facts yourselves.

II.—Principal Causes of the Bad Condition of Malay Holdings.

If we carefully investigate the matter we shall find that the Malays are lacking in the following, and this lack is responsible for their backwardness :

(1) Agricultural education ;

(2) Co-operation ;

(3) Diligence and agricultural enterprise ;

(4) Capital.

(1) *Agricultural Education.*—We all know that knowledge is essential in every undertaking, for without it nothing can be done successfully. To acquire knowledge one must have education. In Europe, America and elsewhere, where agriculture is the main occupation of the people, we shall find that every agricultural holding is in a much better condition than that obtaining here. Why ? Because those people have knowledge, or in other words, all their " kebuns " receive proper cultivation and upkeep in accordance with the laws governing agriculture. The present great activity of those people in scientific education and research work is sufficient evidence of their keen interest in the future of their agriculture, the development of which, in recent years, is very marked.

I admit the fact that, on the one hand, if one wishes to be educated, one must go to a school or college for training, and unfortunately there is no such agricultural institution (except the Department of Agriculture) in this country at present, but in passing I may mention here that Government has already contemplated establishing one in the near future. On the other hand, so far as agricultural knowledge is concerned, I think an ordinary man possessed of clear and sound brain could also learn to acquire it to a certain extent by his own zeal, that is self-education. This simply involves the making of some experiments and noting carefully the results for comparison with one another; to find, for example, the suitability of a certain crop to a particular type of soil, its requirements, etc. This practice, if continued for a considerable period, would certainly benefit the worker; and if the Malays could do these simple experiments by co-operation, I am sanguine that the results would be far better still.

(2) *Co-operation.*—In an enterprise of any kind co-operation is also essential. The Malays are well aware of this fact but they are too weak and slow to form any system that would bind them together in their agricultural work. " Concur is blessing," " Union is strength," etc. are sayings which are always spoken of by the majority of the Malays but they never try to concur or unite. In fact they will always disagree in everything. To the poor and

uneducated the matter is quite different, but what about the rich? These wealthy people, who ought to take a lead, are seldom found to give any assistance, financially or otherwise; in fact they sometimes neglect their land and so cause more hardships to the poor people.

(3) *Diligence and Agricultural Enterprise.*—So far as diligence or zeal is concerned, I think I am correct in saying that nearly all the Malay people in the agricultural community are indolent. There may be some intelligent men who have made certain progress in their agricultural work, but, here again, their further advancement is hindered naturally owing to lack of enterprise.

To give you a good example, I take the opportunity of referring you to a Chinese vegetable garden. If we carefully examine it we shall see that it is well kept and managed under the best possible system of agriculture. Those people have no agricultural education; they only plant vegetables which have a market rate of 2-8 cents a kati (cf. price of rubber?), but in spite of this, they are successful, and in fact many of them have become prosperous and well-to-do people. Why? Because they are industrious, zealous, painstaking and most patient men, who doggedly stick to their work, and never does it occur to them to scatter their powers, quite unlike the Malays, for, once a Chinaman is engaged in one kind of business he will stick to it faithfully until he succeeds.

With regard to their method of agriculture, it is simple and practical, but effective. I would indeed advise any one who is keen on the study of agriculture to go to one of these Chinese vegetable gardens and see the various operations there. Practical study is far better than book study because it can be acquired quickly and easily. Some of the things which would-be students should learn and commit to their memory are:

(i) System of planting, cultivation, etc.;

(ii) Methods of preparing the land;

(iii) Manure;

(iv) The industry and patience of the Chinese people.

(4) *Capital.*—It is true that the majority of the Malay people are poor, and consequently cannot keep their holdings always clean or in a satisfactory condition, but you must not forget the three factors which I have mentioned above. If the Malays could be roused to use their energy and exert their efforts, I am sure that their condition would not be so bad as that; at least they should be well-off and have the means to keep pace with the times. Knowledge is more essential than money, and so far as the Malay people are concerned, every one in this country can easily make money provided he has the knowledge to make it, and this knowledge is to be obtained through zealous industry, hard work and patience.

The Government has made regulations to assist Malay land-owners by lending them on easy terms the necessary capital to help them to plant their land, so that if they would only contribute the necessary work, they would have the opportunity of making a good income from their land.

III.—Some of the Means which could be Employed to Improve Native Agriculture.

The possible means which could be utilized at the present time so as to give effect to the amelioration of native agriculture are, I think:

Firstly.—The Department of Agriculture should give advice and instructions and see that these are followed and adhered to by all native holders;

Secondly.—The Malays should abandon their useless ancient beliefs, etc.;

Thirdly.—They should learn to try and make simple experiments of their own and note carefully the results therefrom, i.e., self-education;

Fourthly.—To impress upon them the value of co-operation;

Fifthly.—To introduce better methods of seed selection;

Sixthly.—To introduce labour-saving implements which they can purchase at a reasonably cheap price;

Seventhly.—By practical demonstration.

1. *Advice and Instructions by the Agricultural Department.*—These are absolutely necessary when we consider the fact that most of the Malay holders are uneducated and ignorant men. Constant advice and instructions by one section of the Department is the *stimulant*, and strict watch or punishment by another, would be the *lever*, so to speak.

Up to the present time, some improvement in native agriculture has already been made through the efficient labours of the Inspection Division. But there is still a vast improvement yet to be made and we hope that when the Department is provided with its full staff, especially in the Instruction Division, it may be possible to achieve further advancement. In the meantime, I hope all of you, whether inspecting officers or otherwise, will exercise your power and rouse your energy to inspect all the native holdings in the district in which you are placed in charge, and try your best to persuade the Malays to adopt a better system of cultivation, upkeep, and control of pests.

2. *Malay Superstitions and Beliefs.*—These are numerous and those which have no foundation whatsoever should be immediately discarded. I admit the fact that the Malays are very obstinate and stubborn, but when they have practical demonstration of our own results they will certainly be bound to discard their old customs and habits. I think they will be impressed with such results, and if the demonstrator is a Malay, they will not hesitate to follow and imitate the improved method. By this means they will gradually abandon their useless customs.

3. *The Making of Simple Experiments* (*Self-education*).—The act of experimenting on anything before actually doing it on a large scale is certainly advisable. The work can easily be done by the Malays with their annual plants, e.g., padi, maize and many kinds of vegetables, but with perennials, it is of course impossible to obtain quick results. Even in the preliminary process of planting anything, especially cereals and legumes, the importance of seed-testing, that is, their germination trial, should not be ignored. Of course the Malays

are not expected to make elaborate experiments, but if they do the simple ones only and carefully note the results in each case, they are bound to benefit by them after a period of some months or years. In fact, they should know that what we now call agricultural science is, in reality, nothing but conclusive results obtained from various experiments which are being carefully done all over the principal countries of the world.

4. *Co-operation.*—The advantage of co-operation in any agricultural undertaking is manifold. By co-operation even the poorest and humblest men would have a chance of obtaining better means of livelihood. In India, Java and elsewhere, people unite themselves into a co-operative body in undertaking their agricultural pursuits, with the result that they are far better off than most of the natives here who do not take the trouble to adopt this simple but beneficial system. Even here you can see several large rubber estates owned by Europeans, Chinese and Japanese. You must not think that these big "kebuns" are owned by an individual person, but they belong to a large number of men who hold various shares in those properties. They call themselves a company, syndicate or association.

5. *Seed-selection.*—The importance of seed-selection need not be too much emphasized here, but suffice it for me to make a brief remark in so far as native agriculture is concerned.

You all know the bad conditions of the Malay holdings which I have described above. Many of the scattered and crowded trees that are found growing in their "kebuns" are not planted. They are simply grown-up plants from seeds which have been accidentally thrown away here and there. In fact, in previous years, almost all kinds of fruit trees were planted from seed without any care as to choice or origin whatsoever. The Malays would plant anything that they could get hold of. Seed-selection in the truest sense of the word in plant-breeding is practically unknown.

In my paper on "Padi Varieties and Padi-Breeding" which is also published in this Bulletin, you will read some account of the importance of seed-selection in cereal crops and the methods of breeding padi plants. Though padi is a different kind of plant, yet the general principles are the same, and the Malays should certainly be advised and urged to adopt the method in planting their "kampong" trees.

6. *Introduction of Labour-saving Implements.*—Most of the implements used in native agricultural work are crude and primitive, thereby involving much manual labour and waste of time. With the introduction of machinery, or any other kind of implement such as reaping machines, harrow, ploughs or tractors, greater progress could be made in the advancement of native agriculture. But one has to be very careful when introducing these things, for it requires much experience with local conditions before success can be assured. The working of the machines should at first be tested under local conditions and when found effective, they could be demonstrated to the Malays as to their effectiveness. Provided these machines are not costly, I am sure the natives would be willing to buy and use them.

7. *Demonstration.*—The Malays are rather slow people and to them advertisement or circulation of any important news does not appeal much. If advice is given them perhaps they will casually listen to it; if they were given printed matter such as pamphlets and bulletins to read, they would probably read it once or twice but forget what they had read the next day.

The best thing to be done is to provide demonstrations. If they are padi planters they should be given every opportunity of seeing our trial grounds or experiment stations. They should be instructed there and then, right on the spot, and anything that has a special feature should be at once pointed out and explained to them. In this way, they are bound, in due course, to follow the better methods they have seen. The same thing should also be done for rubber and fruit growers.

SOME INSECT PESTS OF PADI.

By Mohamed Yusope,
(Malay Probationer, Department of Agriculture, F.M.S.).

OUR object in this conference is to discuss the insect pests of padi. The insects which I am about to describe are those typical ones which have once or more occurred as serious pests of padi in Malaya.

In considering matters of this nature you must clearly understand that the insects mentioned below do not constitute a complete list of the pests of padi, as there may be many more which we are likely to come across. For that reason we cannot conclude that our information is final, for this reason it is hoped that all of you will send to the Government Entomologist specimens of insects which occur as pests and which you may be able to note; and to ask for advice in order to check them from spreading.

Types of insects which occur as padi pests differ both in structure and habit; and the attack made by them to the parts of the plants also varies in the nature of injury and position. The well-known pests of padi in Malaya are as grouped below:

I.—Stem borer (*schoenobius*) which we call in Malay "Ulat Layar" or "Ulat Gading." It bores into the stem of padi, eats and lives and cocoons inside until it becomes an adult.

II.—*Nephotetix bipunctata* and *Podops coarctata*, types of sucking insects which we call "Benah" and "Kutu Bruang" in Malay. These insects suck the sap of padi stems and leaves.

III.—*Leptocoriza varicornis* which we call in Malay "Pianggang." A type of active bug which feeds on ripening seeds of padi by sucking the milky juice which is contained in the grains.

I.—*Schoenobius bipunctifer*, a type of moth which is called by padi planters of Malaya "Ulat Gading" or "Ulat Layar." Its distribution is throughout the Malay Peninsula.

A female insect lays eggs in clusters on leaves of padi. The eggs are covered with yellowish hair derived from the anal tuft of the female moth.

The larvæ when hatched go to the tip of the leaves in swarms, whence they are blown away by winds to the neighbouring plants. The caterpillar bores into the stem of the padi until it reaches the heart of the plant. The full grown caterpillar is about 1-1½ inches long, smooth and segments distinct. The colour is whitish yellow with green mixed, and the colour of the head is orange yellow.

The caterpillar pupates inside the hole where it has fed last and emerges through the hole previously made by it during the young stage.

Control.—Light traps are likely to be of use in attracting these moths, which have a tendency to come round a burning lamp, where they can be easily collected and killed.

Egg masses are easily collected as they are seen on the leaves.

Pupæ are often seen in the padi fields in cut portions of the plants after harvest. Such portions of the plant as are not wanted should be destroyed by ploughing or burnt.

An attacked plant shows itself with its central shoots dying or drying ; such plants must be cut and burnt at once.

II.—The insect which feeds on the sap of the stem and leaves of Padi plants is *Nephotetix bipunctata*, which is called by padi planters of Krian "Benah." The distribution of this insect is throughout Malaya.

The colour of the egg is pale yellowish white and it is cylindrical in shape. The female adult usually oviposits singly in an opening at the inner side of the leaf sheath.

The opening is usually made by her when she is ready to oviposit and it is made by means of the saw she has at her annal segment.

A female adult when ten days old begins to lay eggs and dies about twenty days after the date of emergence.

As observed in the laboratory, a female adult is capable of laying from 70-136 eggs at intervals of once in 3 or 4 days, laying from 30-35 eggs at a time. The male adult is not found to have lived for more than ten days.

The eggs hatch after six days, the nymphs feeding on the plant for about 18 days during which they undergo five moults after which they assume the adult (winged) stage. The young are similar to the adult but wingless. The bug, both nymph and adult, feeds on the sap of padi stem and leaves.

When the adults occur in large numbers they excrete sticky substances (honey dew) on the leaves and stem of the plants, and a characteristic black fungus soon grows on the honey dew.

The size of an adult insect is no bigger than "padi merbok", and is green in colour. It jumps from place to place for its food and is capable of flight.

It may be considered as a serious pest, for in cases of bad infestation practically the entire field is wiped out and seldom recovers, and the few plants remaining assume a yellow, unhealthy appearance.

Control.—Sweeping the insect with a hand net is preferable, the insects then being destroyed by steeping in a mixture of kerosene and water.

Padi stubble should be cut and burnt immediately, for therein may be eggs.

Podops Coarctata is another type of insect whose habit of attack is more or less like that of *Nephotetix bipunctata*. This insect is called "Kutu Bruang" by padi cultivators of Pahang and Malacca.

The female adults lay eggs everywhere, sometimes on all parts of the plants, in cracks of soil and in other places, according to the season. The insects, larvæ and adults, prefer cool places, but in times of drought they live between the stalks of the plants below, and

there eggs can be found. During very dry weather when there is no water at all in the bendang, they live between cracks of soil, and there too, eggs of Podops can be seen in batches. Where there is plenty of water in the bendang they live below the leaves of the padi-plants where one can also see the eggs.

The female after about 24 days begins to lay eggs and remains in existence for from 10 to 20 days. Each female is capable of laying from 30-40 eggs. When she has laid her eggs she usually rests on them for a period of from 5 to 7 days, when the latter will have hatched.

The nymphs are red and round in shape like a pin's head. They cast off their skins five times and then become adults, either males or females.

The life cycle is: Eggs 5-7 days, nymphs 4 + 14 + 10 + 12 + 10 days, the nymphal period representing those spent in each instar between the moults; total about 50 days + 24 days before she is capable of laying eggs from date of emergence makes the total of about 70-80 days.

The young nymphs begin feeding while they are in the second instar, and in this stage they are very active and hide themselves away so that they are little noticed.

The nymphs are found feeding at the decayed parts of the stems and grasses and as they grow older they make their way to the padi stems and leaves and suck the juices.

The insects are often found, in the first instance, on plants attacked by stem borers—and from there they spread rapidly.

Control.—Flooding the bendang is likely to be of use, and collecting the insects by means of "Pongkis" (a type of basket used by coolies for carrying earth) and killing them by crushing.

When the "bendangs" are flooded is the best time for the collection of this pest. An egg parasite has been found and this reduces the number of *Podops*.

III. The sucking insect which we call *Leptocoriza varicornis* does damage to immature padi seeds. It is called "Pianggang" by padi planters of Malaya. Its distribution is throughout the Malay Peninsula. The colour of the egg is dark brown. The eggs are laid in rows on leaves of padi and grasses. The young nymphs are pale green with very long antennæ. They suck juices of the food plant but are little noticeable.

The adult and larvæ of this insect especially attack the ripening grain, sucking the milky juice, thus causing the grain to be empty. One female can lay about ten eggs, and owing to the fact that these insects can live at all times throughout the year by obtaining their food from grasses that bear grains like padi plants, they must be considered a probable serious pest of padi.

They congregate in cool places and are often found living among grasses and other crops such as peas and beans.

Control.—Sweeping the insects with hand nets and placing them in a mixture of kerosene and water is the only measure that is considered feasible.

METHODS OF CONTROLLING RATS IN RICE-FIELDS.

By Inche Uda bin Samsudin,
(*Malay Probationer, Department of Agriculture, F.M.S.*).

THE recent problem of food production in connection with the rice shortage in this country has resulted in the Government taking steps to compel all estate owners and others to cultivate more food-stuffs, especially padi.

In view of this, considerable areas (both wet and dry) have been planted with this particular crop, the yield of which is expected to augment the country's local supply of rice.

In padi cultivation, though there is nothing much to be done after planting, except weeding, yet great care should be taken against pests of all sorts, especially rats. Now, rat is reported as one of the worse pests that has caused considerable damage in almost all padi fields in the Federated Malay States. In fact, one of the main causes of low yields is attributed to the attacks of these vermin which have often resulted in great losses to the padi cultivators. In view of this, it is therefore necessary that measures be taken to combat this pest, and so far, the following methods have been found successful in controlling rats in the "bendangs".

(1) By poison { (*a*) Stomach poison;
(*b*) Fumigation (Carbon Bisulphide).

(2) By trapping.

Stomach Poison (Phosphorus Arsenic.)

The sale of this poison is prohibited by the Government but if procurable it would certainly be useful for poisoning rats. The poison is usually in a solid lump of varying size, which should be ground to a powder. One "tahil" is sufficient for a bendang having an area of about three acres.

Several Malays have tried this method in the Krian district and so far their efforts have met with some success.

Fumigation (Carbon Bisulphide).

Carbon Bisulphide is a simple but most efficient method of getting rid of rats in rice-fields, for it is a poison if breathed in quantity. It is a colourless liquid made from sulphur and charcoal and has a bad odour. It evaporates quickly in ordinary air forming an explosive mixture.

Method of using Carbon Bisulphide.

We know that rats always live in burrows, i.e., in holes which are made in the "batas," old ant hills, decaying stumps of trees or any high and dry ground in the proximity of the "bendangs". Ordinarily, each burrow has two openings, one is much wider with an accumulation of fine earth around its mouth (i.e., the excavated earth) and the other is smaller and is probably used as an emergency entrance or exit.

Having ascertained the locality of these holes, which should be marked the previous day, the operation can then be started. Three men are necessary, one to carry the liquid (carbon bisulphide) in a tightly corked bottle, one to carry some cotton or "kapok" made into balls each as large as an egg, and the other to carry a "changkol" for shutting up the holes with earth when the poison has been applied. The rats usually remain in their burrows in the day time and only come out at night. Therefore the best time to apply the poison is during the day, between the hours of 10 a.m. and 4 p.m. Firstly, saturate a cotton-ball with carbon bisulphide, then immediately insert in the hole to a distance of six inches. The man with the "changkol" can then cover up the hole with a big lump of earth. Of course, in order to prevent any escape all the holes should be treated in this manner.

The poisoned holes should be examined about 24 hours later to see if any have been opened. If such are found, double the amount of liquid should be used in the next operation, and all holes securely sealed with earth.

A bottle of this liquid would be sufficient for about 400 holes.

Precautions.

Certain precautions are necessary in using this liquid, owing to its inflammable nature. No fire of any kind should be allowed to come near it when the bottle is uncorked. When the operation is being done none of the three men should smoke.

The bottle containing the liquid should be securely corked.

Trapping.

This is another method of catching rats in padi fields. The method has been found effective to a certain extent, but in dealing with a great number of rats the result would not be as good as fumigation. For Malays, trapping is recommended, for many of them know how to make their own traps, which are usually of wood.

Cheap imported traps are obtainable from any large shops throughout the Federated Malay States.

Precautionary Measures.

A.—Every effort should be made to get rid of as many rats as possible before sowing the padi seed in the nursery, so as to minimize their subsequent ravages.

B.—All their holes or any other places which are likely to harbour them, such as old ant hills, blukar, etc., should be destroyed.

C.—In sowing the padi seed, co-operation is essential, i.e. all people of one locality or mukim should do the operation at one time. Thus uniform ripening of the crops results. It is also permissible to sow seed earlier or later, according to the maturation period of the padi varieties.

D.—Finally, it is extremely important that co-operative efforts are the most efficient means of destroying rats or any other kind of pests in the padi crop.

INSECT PESTS OF COCONUTS.

By D. Ponniah,

(Insectary Assistant, Department of Agriculture, F.M.S.).

COCONUT has been grown extensively in Malaya from time immemorial and it holds a place second in importance only to rubber.

We are here to-day to discuss some of the more important insect pests affecting the coconut tree.

Now let us consider first the pest that attacks chiefly the young plantations.

Termites or White-ants.

This is known in Malay as "Anai anai." The pest is more seen in young plantations where timber has been allowed to remain for two or three years. This presents a convenient nesting place for them. They breed and multiply there. From here they migrate to young coconut trees if their natural habitat is disturbed or when they run short of food.

The exact life-history of these insects has not been worked out, but their habits are fairly well known. If in some place affected by this pest, timber, which as I remarked before forms the nesting place, is removed, there appears to be a violent attack on young coconut palms or rubber trees close by.

Control.—Complete destruction of all timber along with the nests is therefore *the remedy* for white-ants. Cleanliness in coconut plantations is a thing of supreme importance, to which all careful planters should adhere.

Pests of Leaves.

Brachartona catoxantha (*Hamps*).—The caterpillars of this moth occur at more or less regular intervals of two, three or even six years in the same locality and do considerable damage by eating the under surface of the leaf, or, when they are full grown larvæ, a portion of the complete leaf-substance. A fairly well attacked coconut holding shows a dry and parched up appearance. The result of the attack is that the nuts will fall off or remain undeveloped. This is due to the leaves supporting the bunches drooping. Attacked trees do not die as a rule, but recover after some time when fresh leaves are put forth.

Life-history.—The life-history of the pest is as follows: Eggs are laid by the adult female moth singly, generally on the lower surface of the leaves and more especially at their tips. They are watery-green in appearance, round, and about the size of a pin's head. From these eggs, tiny little caterpillars, having hairs all over the body, hatch out. These feed voraciously and grow rapidly. After about five weeks they are full grown, when they pupate inside a white silken cocoon either on the leaf or on the stem or at any other convenient position on the tree. Moths come out from the cocoons after about nine days. The upper surface of the wings is a dirty brown in colour and the body is for the most part yellow in colour.

Natural Control.—This pest seems eventually controlled by climatic conditions, parasites, and predators. The chief among the insect parasites is a Tachinid fly. This lays its eggs usually on the heads of caterpillars, generally one on each. The eggs hatch in three days into maggots which enter the body of the host and feed inside until the host dies. When the maggots are full fed they come outside the body of the host and pupate. They emerge as flies after seven or eight days.

A small hymenopterous insect lays its eggs inside the body of the caterpillar. The larva hatches out and feeds inside and, after a few days, is seen pupating under the body of the caterpillar. The appearance of this on a leaf *in situ* is as if the caterpillar is brooding over an egg.

A species of fungus also attacks the caterpillars and is responsible for reducing the number of this pest considerably.

Control.—Several remedial measures have been tried. The chief recommendation so far is to cut the lower affected leaves and burn them. This method, while reducing the pest to a degree, kills parasites as well as pests. It should be done at a time when it will be least injurious to parasites, namely, on the first appearance of the moths.

Adult moths are inactive during the night and from 9 a.m. till 2 p.m. in the daytime. During these times they can be easily collected by means of hand-nets or crushed between flatstone or wood where the trees permit.

Cultural and other methods of control are being tried but the experiments cannot be said to be conclusive at present.

Plesispa reichei.—This belongs to a family of leaf eating beetles. It is what was hitherto known to us as *Bronthispa froggatti.* It was noted in the Federated Malay States in 1914-1915 as a minor pest doing some damage to coconuts. It has increased in seriousness ever since. So far, parasites or predators have not been found keeping it in check. This then is presumably the reason why it is assuming serious proportions.

Life-history.—The whole life-history takes about two months and the whole life of the pest is passed on the tree between the just opening fronds and young leaves. Eggs are laid there, and grubs feed and pupate there. The adult beetles also are found there feeding and pairing. The adults shun light and are capable of flying when disturbed. The question of control, therefore, becomes a problem which cannot easily be solved.

It has not yet been found possible to treat them with any poison-sprays. Experiments will shortly be tried by the Department to see if any satisfactory control is possible. The only suggestion for control for the present is: To press the leaflets together between thumb and forefinger so as to kill the adult beetles, grubs, pupæ and eggs that are found between and inside the leaflets.

Other Pests.

Coconut Spike Caterpillar.—This belongs to a family of moths. The caterpillar of this moth attacks both male and female flowers of the spike. When the male flowers are attacked their anthers are eaten first, the dead flowers and frass being spun together with silk (which they secrete) into a dirty looking mass around the branches of the inflorescence. Tunnels are formed within this mass in which caterpillars move freely to and fro. In badly attacked places, caterpillars of various sizes of growth can be seen. When the male flowers are thus attacked and eaten away, a few caterpillars may destroy female flowers, while yet a few will migrate to other spikes when food-supply is exhausted. The caterpillar pupates in a roughly constructed silken cocoon in the mass of dead flowers and frass. The result is that nuts are generally not formed, even if the female flowers are not bored. The only treatment recommended at present is to cut and burn all affected spikes.

Coconut Pollen Mite.—Mites do not come under the category of "insects". They are eight legged creatures in their adult stage as against six legs of insects. These mites feed on the pollen. Mr. P. B. Richards records in page 417, Agricultural Bulletin, Federated Malay States, Vol. VI, No. 10, as follows: "Such of the pollen as is not destroyed becomes massed into heavy lumps, and probably is rendered unfit for pollination of the female flowers." The result is the formation of a scanty crop of nuts.

Pests of Stem and Shoot.

Rhinoceros Beetle.—This is what is known in Malay as "Kumbang hitam". It occurs throughout Malaya in all seasons of the year. Eggs are laid in decaying organic matter such as coconut stumps and manure heaps. From these eggs, whitish grubs with three pairs of legs hatch and feed upon the rotting vegetable matter. When full grown they pupate and emerge as adults which fly to coconut palms and by injuring the crown provide a means for the red weevil to enter for egg laying. This ranks as a very important major pest of palms and is a potential carrier of fungus diseases of palms.

Control.—Various methods of control have been suggested. The best among them are destroying all the possible breeding places, and in so doing eggs, grubs and pupæ, and extracting beetles by means of a wire:

The beetles are attracted to light in India but experiments conducted here have met with little success.

Poisoning rubbish heaps and traps have been suggested but the success or otherwise of these for Malaya cannot be gauged without actual test. Mr. P. B. Richards has observed a Scolid wasp, *Scolia procer*, rendering great assistance to the coconut planters in this country. The larva of this wasp is parasitic on the fat grubs of Oryctes. He also describes in one place very clearly how the mother wasp finds the grub which is lying several inches below the surface and deposits her eggs on the host (*vide Agricultural Bulletin*, Federated Malay States, Vol. VI, No. 15).

Red Weevil.—This is what is known to most Malays as "Kumbang merah". Males and females can be easily distinguished by the difference manifested in their snouts. The snout of the male is rather straight and thick and appears brush-like whereas the snout of the female is slender and a bit curved at the tip and without the brush. Eggs are laid in places damaged by Oryctes, i.e., at the crown, or by mechanical means to either the crown or trunk. Grubs hatch out after three or four days and when full grown they pupate inside the tree in cocoons formed of the fibrous tissues of the tree from which beetles emerge. Investigations to ascertain their habits and experiments for control are now being conducted. So far the adult beetles have been found incapable of boring into healthy stems and it seems that only when the soft tissues are exposed can they continue their ravages. This pest can do considerable damage to the "African Oil Palm," a tree which is being introduced in Malaya.

Control.—Adult beetles are attracted by the smell of rotting coconut stems where they lay their eggs and breed; it is suggested that lengths of palm wood kept in or near the plantation in order to attract the beetles for egg laying would be useful, but every month or less these traps must be burned, and the beetles that are attracted must be collected every morning and destroyed.

All coconut tree stumps, trunks, and soft parts, when cut down, or when they die, must be immediately destroyed. Other remedial measures which are suggested by various authorities in many countries will be tried here before they are recommended for general use in this country.

There are several species of caterpillar pests, such as skippers, bag-worms and slugs which occur as sporadic major or minor pests in some localities. They are often kept well under control by parasites or predators. It is only when natural control does not seem to operate adequately that these insects assume pest proportions. Scale insects, mealy bugs also attack our coconuts. Further researches on their life-histories, etc., should reveal means for easy control.

MINUTES OF ORDINARY MEETING OF THE PLANTERS' ASSOCIATION OF MALAYA,

held at the Civil Service Club, Johore Bahru, on 27th September, 1920, at 10.30 a.m.

PRESENT:

Mr. J. Bruce (*Vice and Acting Chairman*) in the Chair
„ C. Ward-Jackson (*Secretary*)

DELEGATES:

From the Bahau-Kuala Pilah D.P.A.	Messrs.	C. W. Keppel-Powis and Stanley Smith
„ Batang Padang D.P.A. ...	„	C. B. Graburn, H E. Darby and C. Darby
„ Central Perak P.A. ...	„	N. B. Beach and E. L. D. Evans
„ Johore P.A.	„	C. Bradbery, W. Miller Mackay, Bruce Petrie, Percy E. Parr, Chris. Sparshott, J. Croft-Groucutt, C. W. Bradburne, H. Henley and C. Fraser
„ Kajang D.P.A.	„	A. L. Shelton-Palmer and C. Gordon Jeavons
„ Klang D.P.A. of the F.M.S.	„	T. J. Cumming, H. Case, A. Douglas, C. Hammond Smith, Chris. Harrison and E. C. Wakefield
„ Kuala Lumpur D.P.A. ...	„	F. Clyde Jeavons, H. Armstrong and J Bloomfield Douglas
„ Kuala Selangor D.P.A. ...	Major	A. B. Slee
„ Lower Perak P.A. ...	Messrs.	W. H. Vaughan Smith, W. R. C. Gray, F. Adelborg, H. J. Gillespie and J. W. Cruickshank
„ Malay Pen. Agric. Assn.	„	T. Wilson and N. W. Mallet
„ Negri Sembilan P.A. ...	„	C. H. Swinton, C. Ritchie and R. Gooch
„ Ulu Selangor D.P.A. ...	„	E. L. Huson and M. J. Kennaway

HONORARY MEMBER.—The Hon. Mr. Wm. Duncan
VISITOR.—The Hon. Mr. F. J. Owen

1.—PRELIMINARY.

Mr. BRUCE reads the following letter together with a letter of apology for non-attendance through illness from the Hon. Dato W. N. Gawler. He very much regrets that His Highness the Sultan of Johore is unable to be present.

"BUKIT TIMBALAN,
"JOHORE,
"*27th September, 1920.*

"SIR,

"Your letter addressed to His Highness the Sultan, dated the 24th instant, inviting him to attend the general meeting of the Association to be held at the Civil Service Club, Johore Bahru,

to-day to hand, also a telegram for invitation to tiffin afterwards at the Johore Hotel, both of which had been accepted by His Highness by telegram.

"I am now directed to inform you that on account of an unforeseen important matter to be attended to to-day the Sultan much regrets that he is unable to avail himself of the pleasure of your invitations but, however, he thanks you for same.

"I have, etc.,

"(Sd.) S. ABDULLAH, LIEUT.,

"*for Private Secretary.*

"THE SECRETARY,

"PLANTERS' ASSOCIATION OF MALAYA,

"KUALA LUMPUR."

2.—MINUTES.

The minutes of the annual general meeting held on 28th April, 1920, and the minutes of the special meeting held on 30th June, 1920, are taken as read and are confirmed.

3.—STANDING COMMITTEE.

The SECRETARY submits the following results of voting for membership of the Standing Committee for 1920-21.

Perak	Messrs. W. R. C. Gray, C. B. Graburn and A. Harman Orr
Straits Settlements	Messrs. A. R. Morgan and F. Duncan Hindley
Kedah	Mr. G. D. F. Sinclair
Negri Sembilan ...	Messrs. R. Gooch, C. Ritchie and C. W. Keppel-Powis
Johore	Messrs. C. Bradbery and the Hon. Dato W. N. Gawler
Selangor	Messrs. H. Case, A. B. Slee, J. French, Thos. H. Menzies and H. L. Carter.
Kelantan	(No results to hand)

He announces that Mr. A. Harman Orr has resigned his seat on the Standing Committee.

Mr. GRABURN suggests that the candidate who obtained the next highest number of votes should be declared elected. He believes Mr. Ferguson was the next on the list, and thinks he would be willing to accept a seat on the Standing Committee.

Mr. BRUCE asks the Secretary whether this will be in order.

The SECRETARY replies there are no provisions in the new rules governing casual vacancies caused by resignations.

Mr. GRABURN suggests that the matter of appointing a successor to Mr. Harman Orr be left to the Constituent Associations in Perak.

This is agreed to.

4.—F.M.S. WAR RELIEF FUND.

The SECRETARY submits the following statement of accounts for the period 1st April to 30th June, 1920:

FEDERATED MALAY STATES WAR RELIEF FUND, SCHEME No. 2. STATEMENT OF ACCOUNT, 1ST APRIL TO 30TH JUNE, 1920.

Receipts.	Amount. £ s. d.	Payments.	£ s. d.	Amount. £ s. d.
Balance from last account ...	38,244 11 8	Grants and gratuities:		
Interest on Investments ...	525 0 0	Mrs. —— ...	112 0 0	
,, Fixed Deposits ...	77 7 2	Guy —— ...	250 0 0	
,, Balance of Current Account ...	5 9 6	Mrs. —— ...	50 0 0	
		,, —— ...	15 0 0	
		,, —— ...	6 0 0	
		,, —— ...	25 0 0	
		,, —— ...	20 0 0	
		,, —— ...	80 0 0	
		,, —— ...	20 0 0	
				578 0 0
		Balance in hand ...		38,274 8 4
	38,852 8 4			38,852 8 4

The balance of £38,274 8s. 4d. is disposed of as under:

	£ s. d.
Five per cent. War Loan (£12,000) at cost ...	11,400 0 0
Four per cent. Funding Loan (£2,500) at cost ...	2,000 0 0
National War Bonds (£21,000) ...	21,000 0 0
On deposit with Chartered Bank of India account	3,500 0 0
Balance of current account in Chartered Bank ...	374 8 4
	38,274 8 4

(Sd.) W. T. TAYLOR,
8th July, 1920.

I hereby certify that I have audited the above statement of receipts and payments with the books and vouchers of the Fund and find the same to be correct. The grants have all been duly authorized by the Committee.

73, BASINGHALL STREET, E.C.
16th July, 1920.

(Sd.) A. H. CULLEN,
Chartered Accountant,
Honorary Auditor.

5.—LABOUR MATTERS.

(*a*) Report of the Executive of the General Labour Committee, British Malaya, on Indian Labour and Labourers.

Mr. Bruce gives a brief account of the formation of the General Labour Committee and the work done by that Committee. He is aware that the minimum wage recommended has caused considerable anxiety to the Executive Committee who had considered the question of wages from all points of view and had arrived at the conclusion that to fix an average wage would be impracticable, and that one minimum wage should obtain throughout the country.

As an individual, he thinks the recommendations of the Labour Committee most reasonable ones. He is glad of this opportunity to state that the minimum wage was not fixed in order to hit certain favourably placed districts. What the Executive Committee considered was the welfare of labour and labourers throughout the country for the ultimate benefit of the rubber and other industries. He invites the Hon'ble Mr. Duncan, Chairman of the General Labour Committee, to address the meeting.

Mr. Duncan says there is little to say in support of the Report which has not been said in the Report itself.

The necessity for taking action to improve labour conditions in Malaya was fully recognized by most employers of labour and by Government before the Committee was appointed to investigate them and make recommendations, and nothing has happened since then materially to alter conditions. There would, however, appear to exist in the minds of at least some employers of labour that the case put forward in favour of offering improved term of employment to Indian labourers has been overstated and that the recommendations made go too far. Such employers, he thinks, have failed to realize that the world has been turned topsy-turvy during the past few years, and that the conditions of pre-war days are never likely to return.

The chief source of labour supply for estates in this country has in the past been India and it will not, he thinks, be contended by more than a few employers that there has during the past few years been a supply from that source equal to the demand.

During consideration of the subject, the Executive Committee had abundant evidence to show that the value of labour in India has risen very greatly—200 to 300 per cent.—and it is not unlikely, judging from the amount of new capital being employed there, it will rise further still. From the purely economic point of view therefore, it is most unlikely that Indian labourers will come here unless we pay them substantially more than they can earn in India. That is the main point to keep in mind; but there are other important points not to be lost sight of.

The political outlook should not be forgotten. We have known for years that there is a growing party in India who look with disfavour on emigration of the working classes—their reasons we need not examine—and we would be guilty of optimism of a very dangerous kind were we to assume that the influence of such a party will not become more powerful as time goes on.

He has read in the local newspapers during the past week or ten days discussions bearing on the subject of the Labour Report, and he would like to reply briefly to some of the reasons given for not accepting the recommendations in the Report as they stand.

One Association did not agree with the Committee's view that the standard of living had not risen as in other countries, and that it was too low. The reason given for disagreement was that coolies now ride in motor cars—the inference being that a low standard of living and riding in cars were inconsistent. He does not wish to dilate on that point, but would like to quote what a planter recently wrote after a visit to India on the subject of the condition of coolies returning there. *Inter alia*, the planter referred to, stated that out of 651 estate coolies returning to India 58 were destitute, 17 only possessed boxes, 100 had bundles, and the remaining 476 had not even a change of clothes. Such conditions do not point to opulence but to penury of a most pitiable description which could not but have a most prejudicial effect upon prospective recruiting in India. Other objections to the Report have mostly been on the score of wages or concessions, and while he is not saying that in some districts a sufficiency of labour cannot be procured on terms lower than the Committee suggest, he considers that the recommendations do not go further than is necessary to attract the labour which the country as a whole requires. The Committee, he might add, had in view at all times the country's requirements and not those of a particular district or State.

The objection raised to the minimum wage of 50 cents by one Association, he confesses, he cannot understand. The objection rested on the ground that a minimum wage of 50 cents removes the incentive for labourers to earn more. It was admitted in discussion that labourers earned up to 80 cents; but still the majority refused to promise 50 cents.

Mr. Graburn proposes that the Report of the General Labour Committee be adopted as it stands.

Mr. Cumming says the Report was fully discussed at a joint meeting of the Klang, Batu Tiga and Kapar District Planters' Associations and the conclusion had been arrived at that the minimum wage should be 30 and 40 cents instead of 40 and 50 cents. They also discussed the question of a maximum wage but it was found to be impracticable to establish it. He says the feeling of the meeting was that there are sufficient inducements already to attract labour. He would like to say that the coast districts felt that they were not fully represented upon the Executive of the Labour Committee. He calls attention to a circular issued by the Labour Department requiring the endorsement on kangany recruiting licences of the rates recommended by the General Labour Committee. He thinks the action of the Labour Department was most precipitate and unwarranted in the circumstances, and that much harm would result from it.

Mr. King-Harman endorses all Mr. Cumming has said. He says that subsequent to the first meeting of the Executive Committee it was considered that the coast districts were insufficiently represented, whereupon Major Slee and himself were co-opted. At the second meeting on 11th August, they advocated a minimum

wage of 40 cents and 30 cents, but were overruled. At the meeting of the General Labour Committee on 25th August, Major Slee suggested an average rate of 40 and 30 cents, instead of a minimum of 50 and 40 cents. This too was overruled and the recommendations were carried. On 14th September, the Klang District Planters' Association, the Kapar District Planters' Association and Batu Tiga District Planters' Association met and formed themselves into a united body, now called the Klang District Planters' Association. This is a very strong body, representing some 80,000 acres. Immediately after that meeting, a mass meeting was held of the above-mentioned Association together with the Kuala Langat and the Kuala Selangor District Planters' Associations to discuss the labour recommendations, with the result that they agreed that the minimum rates should be placed at 40 and 30 cents; that bonuses should be placed at $20, and that the manner of payment should be left to the discretion of the managers. It was reported that he had said at the Klang District Planters' Associations' meeting that the time was approaching for the coast districts to break away from the Planters' Association of Malaya. By that he meant that existing conditions appeared as if this course would be enforced upon them.

This was a grievous state of affairs and if possible should be avoided almost at any cost but they (the coast districts) were not going to be coerced. They had been exploited in the past and there was no doubt the same was to be tried again. They had already raised their rates very considerably in the past few months, and they failed to see why they should be obliged to raise them still further when there was no absolute necessity for so doing. The Controller of Labour, at the meeting held on 25th August, spoke very highly of Ramasamy. They all quite agreed with what the Controller had said that Ramasamy was a splendid fellow and that they should stand by him now, as he had stood by them in the past. The chairman of that labour meeting closed it by endorsing the Controller's remarks, adding that it was better to give Ramasamy this rate of wage now, rather than wait until he asked for it himself first.

Those remarks, no doubt, greatly influenced the subsequent voting; but with all deference to the chairman of that meeting he wished to say that it was as well to be consistent. At a previous meeting of the Labour Committee, the chairman (Mr. Duncan) in reply to a question by him, stated: "If I could obtain sufficient labour at 40 cents I would not give 50 cents."

He has nothing more to say, but he appeals to the meeting to grant the coast districts practically the one and only concession they ask for—namely, to alter the minimum, or as the Ulu Selangor District Planters' Association put it, the medium wage to 40 and 30 cents. In conclusion, he says that when these recommendations were first formulated and considered, rubber was selling in the neighbourhood of 85 cents, and that to-day it is somewhere in the region of 50 cents and was likely to go very much lower. The original Committee must feel that they cannot go back on their recommendations, and so in duty bound feel they must abide by them.

Mr. BRUCE understands the circular alluded to by Mr. Cumming was sent out in error and has been withdrawn.

Mr. HARRISON says Mr. Duncan referred to a number of coolies going back to India destitute. He enquires how much such coolies had remitted money to India. He points out that Mr. Duncan referred to certain coolies earning 80 cents a day and he reminds the meeting that the question relates to a minimum wage. He thinks it would be a great mistake if there were a split in the Association in consequence of the minimum wage recommended and he thinks the best way out of the difficulty would be for the Association merely to receive the Report. He therefore proposes as an amendment that this meeting receive the Report of the General Labour Committee and that it be laid on the table.

Mr. ALEC DOUGLAS seconds Mr. Harrison's amendment.

Mr. DUNCAN, in reply to Mr. Harrison, quotes figures of wages earned by coolies in the coast districts. One labourer earned $5.21 and another $4.45. If such wages represented minimum wages he would like to know how it would be possible for labourers to live in those districts up to a decent standard.

Major SLEE enquires whether the labourers referred to by Mr. Duncan had worked a whole month.

Mr. DUNCAN gives instances with detailed particulars of the number of days worked and the amounts earned by labourers in the coast districts.

Mr. KING-HARMAN states that in the Klang district, planters there propose to adopt the maximum now paid as their minimum.

Mr. DUNCAN, in reply to Mr. Cumming's criticism that Selangor had not been fully represented on the Executive of the Labour Committee, states that seven Selangor gentlemen were members of the Executive Committee.

Mr. KING-HARMAN points out that Major Slee and himself were co-opted only after the first meeting of the Executive Committee.

Mr. DUNCAN says representation was given the coast districts as soon as they intimated that they thought they were not fully enough represented.

Mr. ARMSTRONG does not agree with Mr. Bruce's statement that there is no question of coercing estates into adopting the Labour Committee's recommendations. His Association, the Kuala Lumpur District Planters' Association, considered the recommendations as being merely recommendations and no more, but there was a feeling that if the recommendations were adopted, legislation might be introduced, and legislation was certainly a thing which should be opposed by planters.

Mr. KING-HARMAN proposes an amendment to Mr. Graburn's motion that this meeting is entirely in agreement with all the recommendations of the Executive Committee with the exception of the following: that the minimum or medium rate should read 40 cents for males and 30 cents for females instead of 50 and 30, respectively, as given in the Report.

Major SLEE seconds the amendment and says he has been waiting to see if those districts which found it difficult to secure labourers were raising wages, but so far he is not aware of one instance.

Mr. GRABURN states that the Batang Padang District Planters' Association had decided to increase wages by 10 cents.

Mr. GRAY says the Lower Perak District Planters' Association have also decided to increase wages.

Mr. HUSON understands that the Central Pahang Planters' Association have increased the minimum wage to 60 cents.

Mr. GOOCH, on behalf of the Negri Sembilan Planters Association, supports the adoption of the Report as it stands. He says it has been alleged that the Executive Committee were trying to coerce coast districts but it would appear to him that it was the coast districts which were endeavouring to coerce other districts. The Klang District Planters' Association had practically told them that they would have to accept what Klang proposed or lose the support of the Klang Association which would secede from the Planters' Association of Malaya. He deeply deplores such threats as he is aware that the new combined Association is a strong body whose co-operation and assistance in matters affecting the planting industry would be highly valuable. He is sure there is no one here who would desire the coast districts to secede from the Planters' Association of Malaya but all desire such districts to act upon the recommendations of the Labour Committee. He is sure nobody wishes to put up wages. In Negri Sembilan there were about one hundred thousand acres and some of the estates have plenty of labour but in order that the whole community might benefit they had agreed to support the recommendations for raising wages.

Mr. CUMMING thinks it most unfortunate that any question relating to coercion or non-coercion has been introduced and those who believed that the Kapar, Klang and Batu Tiga District Planters' Associations had amalgamated for the purpose of coercing anyone made a grievous mistake. Further, he deeply deplores the suggestion that the newly formed Klang District Planters' Association should secede from the Planters' Association of Malaya and he wishes to disassociate himself from any remarks that have been made which would be likely to have that effect now or in the future. As chairman of the Klang District Planters' Association, he says if there is any inclination to break away from the Planters' Association of Malaya his Association will have to find another chairman.

Mr. CLYDE JEAVONS (Kuala Lumpur District Planters' Association) says the Kuala Lumpur District Planters' Association were also not unanimous on the point of a minimum wage. They were all agreed that the Report was an excellent one and practically all the recommendations were adopted by them. The only objection they found was to the exchange question. They thought that a time limit should be put on the exchange compensation, that is that the concession should cease after the time fixed had expired. On the question of the minimum wage they found that people who had plenty of labour and who were able to keep it were not keen on putting up their rates. The point they had to remember was that

the Planters' Association of Malaya was one of the controlling bodies in labour matters, and if they wanted its prestige and influence to increase they must all pull together. He thinks that the coast districts and a section of the Kuala Lumpur district should be prepared to make a slight sacrifice for the good of the whole country. He considers the minimum wage recommended is a fair wage to pay to a coolie irrespective of what he is now being paid. He is sorry that all Constituent Associations are not unanimous on the matter. It is a question where personal inclinations clash with the orders of their directors and agents to produce rubber at a minimum cost; but he is strongly in favour of the minimum rate laid down in the Report. He is pleased to see the amalgamation of the Coast District Planters' Associations and is glad there is no question of these important districts seceding from the Planters' Association of Malaya. Some people seemed to think that whenever there was a little trouble in the Planters' Association of Malaya they must necessarily put up the revolver of secession. It is a wrong principle, and he is sorry that a threat of secession from the only organization that was worth a damn in the country had been made.

Mr. BRADBERY strongly supports the recommendations of the Executive Committee and says the Johore Planters' Association have adopted the Report without a dissentient voice.

Mr. KENNAWAY reads the following resolution passed at the last meeting of the Ulu Selangor District Planters' Association: "That the recommendations of the General Labour Committee are approved by this Association with the exception of (*a*) The minimum wage for male labourers. This Association suggests that the word 'medium' be substituted for 'minimum' in this connection; (*b*) The date at which the recommendations, if adopted, are to come into force. This Association suggests that the date be altered to 1st January, 1921."

Mr. JEAVONS enquires what exactly Mr. Graburn's motion means, and what the Labour Committee will expect them to do if the Report is adopted.

Mr. DUNCAN replies that the adoption of the Report means that unanimously or by a majority the Planters' Association of Malaya accepts the terms recommended by the General Labour Committee in their Report on Indian Labour and Labourers.

Mr. JEAVONS further enquires what will happen to the minority.

Mr. DUNCAN says the minority will be able to do what it chooses and that so far as he is aware there would be no coercion or legislation to enforce the terms of the Report.

Mr. KING-HARMAN explains that when he used the word coercion he did not mean it so strongly as has been understood. What he meant was that circumstances seemed to indicate that estates would be compelled by law to carry into effect the Labour Committee's recommendations. He had no desire to hurt the feelings of anyone by his use of the word.

Mr. RITCHIE refers to the argument advanced that those who already pay high wages might find it difficult to raise them. He points out that people who cannot get labour, invariably resort to

increased wages in order to attract the labour they require. It seems to him that if the coast districts pay their coolies, say 50 cents, other districts will have to pay proportionately a higher rate because of the less favourable conditions.

Mr. GOOCH would sincerely apologize if he has hurt the feelings of any delegate by his previous remarks.

Mr. ARMSTRONG also expresses regret for his use of the word coercion.

Mr. GILLESPIE seconds Mr. Graburn's motion and briefly speaks in support of the Labour Report.

Mr. BRUCE puts Mr. King-Harman's amendment to the meeting 9 voting in favour and 25 against it. He declares the amendment lost.

Mr. Harrison's motion is then put to the meeting 8 voting for and 24 against. This amendment also is declared lost.

Mr. Graburn's resolution is put to the meeting and is declared carried, 26 having voted for and 9 against.

Mr. BRUCE declares the Labour Report accordingly adopted by the Planters' Association of Malaya.

(*b*) AMENDMENTS OF LABOUR CODE.

Mr. BRUCE announces that at a meeting of the Standing Committee the draft Bill to amend the Labour Code in order to provide for the care of labourers' dependents was discussed and that the following letter was despatched to Government:

"KUALA LUMPUR,
"*10th September, 1920.*

"SIR,

"With further reference to your letter of 19th May last, No. 14 in C. of L. 410/1919, and to your letter of 17th July last of the same number, I have the honour to inform you that the Standing Committee of this Association have considered the draft Bill to amend the Labour Code in order to provide for the care of labourers' dependents.

"2. I am directed to inform you that the Standing Committee recommend:

'(*a*) In regard to section 2, sub-section (i), 107A of the Bill—that infants up to three years of age should be accommodated in the creches or nurseries which the Controller of Labour may, under the Bill when it becomes an Enactment, require employers to construct.

'(*b*) In regard to section 2, sub-section (ii) *idem*—that milk and/or rice should be supplied to such infants at the employers' expense during the whole of the period they are accommodated in the creches, and that the creches be open during the hours the mothers or guardians of such infants are at work.

'(*c*) In regard to section 3 *idem*—the age 'fourteen years' should be substituted for 'sixteen years.'

"3. I am to request that the recommendations contained in the preceding paragraph be incorporated in the Bill under reference.

"I have, etc.,
"(Sd.) C. WARD-JACKSON,
"*Secretary.*

"THE CONTROLLER OF LABOUR,
"S. S. AND F. M. S.,
"KUALA LUMPUR."

(*c*)—GENERAL.

The SECRETARY submits the following correspondence:

"OFFICE OF THE CONTROLLER OF LABOUR,
"S.S. & F.M.S.,
"KUALA LUMPUR,
"*24th August, 1920.*

"No. 493/20.

"SIR,

"I have the honour to inform you that at the meeting of the Indian Immigration Committee held at Penang on the 9th instant it was decided to raise the recruiting allowance or rebate as is otherwise known from $10 to $20 for the fourth quarter of 1920—i.e., from 1st of October 1920, and it is hoped that it will be possible to maintain the allowance at the latter figure.

"2. In arriving at the above decision the Committee wished to record the opinion that no more than Rs. 10 per immigrant should be given as commission to the recruiting kangany and the Committee requested me to bring this to the notice of your Association with a view to the members being informed of it.

"I have, etc.,
"OLIVER MARKS,
"*Acting Controller of Labour, F.M.S.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA,
"KUALA LUMPUR."

"OFFICE OF THE CONTROLLER OF LABOUR,
"S.S. AND F.M.S.,
"KUALA LUMPUR,
"*6th September, 1920.*

"No. 509/20.

"SIR,

"I have the honour to inform you that a cable has been received from the Emigration Agent, Madras, in which that officer recommends the sending of more Telugu kanganies to recruit in view of improved train service to Madras from the Telugu districts from 1st September current.

"2. I would ask you to pass this information on to the members of your Association.

"I have, etc.,

"OLIVER MARKS,
"*Ag. Controller of Labour, F.M.S.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA,
"KUALA LUMPUR."

"OFFICE OF THE CONTROLLER OF LABOUR,
"S.S. AND F.M.S.,
"KUALA LUMPUR,
"*6th September, 1920.*

"No. 491/20.

"SIR,

"I have the honour to inform you that the Hon'ble the Colonial Secretary, Straits Settlements, has been approached by Messrs. Simon Rodrigues' Sons of 11 Main Road (1), Royapuram P. O. Madras, with an application for permission to recruit skilled and unskilled artisans and labourers for Government.

"2. This application was duly referred to the Federated Malay States Emigration Agent at Madras who reported that this firm stated that they can procure any kind of skilled and unskilled artisans in large numbers and from the papers the firm showed the Emigration Agent it was evident that they were in touch with hundreds of this class and that they recruited engineers, men engaged on all kinds of railway work, fitters, carpenters, etc. The Emigration Agent thought that there would be no objection to utilising the services of this firm in putting the Government in touch with skilled labourers for service on the Railway or in the Public Works Department.

"3. The correspondence on this subject was discussed at the meeting of the Indian Immigration Committee on the 9th of August ultimo and I was requested to inform you of it in case planters in the Federated Malay States might desire to obtain skilled and unskilled artisans through this source. The Emigration Agent strongly advised against attempting to obtain agricultural labourers with the assistance of this or any other similar firm of recruiters.

"4. Messrs. Simon Rodrigues' Sons also state that they can find Madras butlers, cooks and other domestic servants for a fee of Rs. 10 per head and the Emigration Agent at Madras will be glad to render any assistance in sending across such people to definite appointments.

"I have, etc.,

"(Sd.) OLIVER MARKS,
"*Ag. Controller of Labour, F.M.S.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA,
"KUALA LUMPUR."

"KUALA LUMPUR,
"*9th September, 1920.*

"No. 446/20.

"SIR,

"I have the honour to enclose herewith a copy of a letter which I have sent to the various District Planters' Associations.

"I have, etc.,
"(Sd.) OLIVER MARKS,
"*Ag. Controller of Labour, F.M.S.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA,
"KUALA LUMPUR."

"KUALA LUMPUR,
"*9th September, 1920.*

"No. 446/20.

"SIR,

"I have the honour to enclose herewith a copy of a notice regarding minimum wages to be stated on kangany licences and to ask you to be so good as to pass the contents thereof to the members of your Association.

"I have, etc.,
"(Sd.) OLIVER MARKS,
"*Ag. Controller of Labour, F.M.S.*"

"KUALA LUMPUR,
"*24th September, 1920.*

"No. 2 in 546/20.

"SIR,

"I have the honour to forward herewith a copy of a statement received from the Emigration Agent, Madras, showing the distribution of the labourers recruited last year and this year up to 27th August, 1920, over the Taluks of the Madras Presidency served by the Avadi Depôt at Madras.

"2. These figures are of course only approximately correct, but they suffice to show the areas where this country has hitherto done little recruiting and where it is very desirable that new connections should be made.

"3. I would ask you to bring this statement to the notice of all members of your Association at the earliest possible date.

"I have, etc.,
"(Sd.) OLIVER MARKS,
"*Ag. Controller of Labour, F.M.S.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA,
"KUALA LUMPUR."

Statement showing the number of coolies shipped through the Avadi Depôt from 1st January, 1919, to 31st December, 1919, from the various Taluks of the Madras Presidency.

District.	Taluk.	Number shipped.			
		Adults.	Minors.	Infants.	Females.
Chittoor ...	Chandragiri ...	140	24	14	50
	Chittoor	780	189	128	305
	Kalahasti	4	...	...	1
	Punganur	...	...	...	...
	Madanapalli ...	...	...	...	...
	Palamaner	8	...	...	...
	Puttur	548	132	74	153
	Tiruttani	300	47	59	107
	Voyalpad	37	15	6	22
	Total ...	1,817	407	281	638
Chingleput ...	Chingleput	291	59	30	88
	Conjeevaram ...	278	146	117	156
	Madurantagam ...	627	153	94	208
	Ponneri	220	40	20	59
	Saidapet	137	4	13	30
	Tiruvellore ...	265	38	34	88
	Sriperambadur ...	...	...	...	...
	Total ...	1,818	440	308	629
North Arcot ...	Arkonam	690	102	99	182
	Arni...	786	143	97	209
	Cheyyar	289	72	74	127
	Gudiatham... ...	330	84	74	139
	Kangundi	...	...	...	...
	Polur	213	51	36	74
	Tirupattur	1,923	208	219	413
	Tiruvannamalay ...	117	27	27	68
	Vellore	567	95	88	156
	Walajapet	561	121	84	130
	Wandiwash ...	565	74	93	139
	Total ...	6,041	977	891	1,637
Nellore ...	Darsi	...	...	...	...
	Atmakur	16	...	...	3
	Gudur	102	14	9	36
	Kandukur	...	...	...	...
	Kanigiri	8	...	...	2
	Nellore	33	7	...	3
	Kovvoor	9	...	...	...
	Rapur	6	...	...	1
	Udayagiri	2	...	...	...
	Vengatagiri ...	...	...	...	...
	Podili	...	...	...	...
	Kavali	...	...	...	...
	Polur	...	...	...	...
	Total ...	176	21	9	45

District.	Taluk.	Number shipped.			
		Adults.	Minors.	Infants.	Females.
Salem	Attur ...	72	20	14	26
	Dharmapuri ...	200	28	24	76
	Hosur ...	...	...	...	...
	Krishnagiri ...	182	33	29	50
	Omalur ...	...	...	...	...
	Salem ...	220	64	34	47
	Trichengodu ...	...	...	...	...
	Uttankarai ...	83	19	17	30
	Total ...	757	164	118	229
Cuddappah ...	Baduel				
	Cuddappah				
	Jammalmadugu				
	Kamalapur				
	Prodattur	...	...	...	...
	Pulivendla				
	Pullampet				
	Royachoti				
	Siddavattam				
	Total ...	...	...	...	...
Bellary ...	Adoni				
	Alur				
	Bellary				
	Hadagalli				
	Harpanahalli	...	...	...	...
	Hospet				
	Kudligi				
	Royadrug				
	Sirugappa				
	Total ...	...	...	...	...
Anantapur ...	Anantapur				
	Dharmavasam				
	Gooty				
	Hindupur				
	Kadiri	...	...	...	...
	Kalyandrug				
	Penukunda				
	Tadpatri				
	Madikasira				
	Total ...	...	...	...	...

Statement showing the number of coolies shipped through the Avadi Depôt from 1st January, 1920, to 27th August, 1920, from the various Taluks of the Madras Presidency.

District.	Taluk.	Number shipped.			
		Adults.	Minors.	Infants.	Females.
Chittoor	Chandragiri	13	...	...	3
	Chittoor	509	98	50	137
	Kalahsti	...	...	...	...
	Madanapalli	...	...	...	...
	Palamener	17	4	6	4
	Punganur	4	...	...	...
	Puttur	339	36	21	73
	Tirutani	511	46	46	97
	Voyalpad	1	...	...	...
	Total	1,394	184	123	314
Chingleput	Chingleput	358	33	31	87
	Conjeevaram	502	84	54	122
	Madurantakam	763	130	91	208
	Ponneri	177	10	4	34
	Saidapet	425	44	17	97
	Sriperambadur	87	9	4	28
	Tiruvellore	332	57	18	72
	Total	2,644	367	219	648
North Arcot	Arkonum	558	61	36	126
	Arni	82	12	7	22
	Cheyyar	163	18	30	44
	Cudiatham	625	97	81	189
	Kangundi	2	...	1	1
	Polur	307	46	26	77
	Tirupattur	1,100	179	140	381
	Tiruvannamalay	291	33	35	85
	Vellore	647	102	84	177
	Walajah	423	80	53	122
	Wandiwash	567	65	41	180
	Total	4,765	693	534	1,404
Nellore	Atmakur	11	1	...	4
	Gudur	33	1	4	5
	Kandakur	...	...	...	...
	Kanigiri	1	...	...	...
	Kavali	1	...	...	...
	Kovvur	5	...	...	2
	Nellore	101	12	9	26
	Polur	...	...	...	...
	Udayagiri	6	...	...	1
	Venkatagiri	...	...	...	...
	Darsi	...	...	...	...
	Podili	...	...	...	...
	Rapur	...	...	...	...
	Total	158	14	13	38

District.	Taluk.	Number shipped.			
		Adults.	Minors.	Infants.	Females
Salem	Attur	56	12	2	26
	Dharmapuri ...	456	60	48	134
	Hosur	...	...	...	...
	Krishnagiri ...	224	28	16	55
	Omalur	6	1	...	...
	Salem	116	25	14	54
	Trichengodu ...	...	...	...	...
	Uttenkarai	241	47	21	62
	Total ...	1,099	173	101	331
Bellary ...	Adoni ...				
	Alur ...				
	Bellary ...				
	Hadagalli ...				
	Harpanahalli ...	...	...	...	...
	Hospet ...				
	Kudligi ...				
	Rayadrug ...				
	Siruguppa ...				
	Total ...	...	...	...	...
Anantapur ...	Anantapur ...				
	Dharmavaram				
	Gooty ...				
	Hindupur ...				
	Kadiri ...	...	...	...	...
	Kalyandrug				
	Madakasira				
	Penukonda ...				
	Tadpatri ...				
	Total ...	...	...	...	...
Cuddappah ...	Badual ...				
	Cuddappah ...				
	Jammalmadugu				
	Kamalapur ...				
	Prodattur ...	...	...	...	...
	Pulivendla ...				
	Pullampet ...				
	Royacheti ...				
	Siddavattam				
	Total ...	...	...	...	...

6.—CASH GRANTS FOR EX-SERVICE MEN.

The Secretary submits the following resolution forwarded by the Ulu Selangor District Planters' Association and also the following correspondence:

1. "That in the opinion of this Association in view of the fact that many returned soldiers are unable to participate in the Government Land Scheme, provisions should be made by Government for some alternative scheme of benefits and this Association suggests that a scheme of cash grants might be a suitable alternative.

2. "That these loans be given free of interests."

"Kuala Lumpur,
"*10th September, 1920.*

"C.W.J./C.S.

"Sir,

"I am directed to enquire whether any revision of the existing Land Grants Scheme is contemplated or being undertaken.

"I have, etc.,
"(Sd.) C. Ward-Jackson,
"*Secretary.*

"The Hon'ble
"The Chief Secretary to Government,
"Federated Malay States,
"Kuala Lumpur."

"Kuala Lumpur,
"*18th September, 1920.*

"No. G. 4837/20.

"Sir,

"I am directed to acknowledge your letter C.W.J./C.S. dated the 10th of September, 1920, on the subject of the revision of the existing Land Grants Scheme, and in reply to inform you that the administration and issue of loans under the scheme will shortly be handed over to the Planters' Loans Board. The question of revising the scheme, as it stands, is under consideration, but it is impossible to indicate, at present, the nature of the final decision.

"I have, etc.,
"(Sd.) A. S. Jelf,
"*Ag. Under Secretary, F.M.S.*

"The Secretary,
"Planters' Association of Malaya,
"Kuala Lumpur."

"KUALA LUMPUR,
"*10th September, 1920.*

"DEAR SIR,

"I am directed to request to be favoured with the views of your Association in the matter of the existing Land Grants Scheme.

"Further, the Standing Committee of this Association will appreciate your views as to the desirability of establishing some alternative scheme of benefits such as cash grants for ex-service men.

"I have, etc.,
"(Sd.) C. WARD-JACKSON,
"*Secretary.*

"THE SECRETARY,
"UNITED SERVICES GREAT WAR
"ASSOCIATION OF MALAYA,
"KUALA LUMPUR."

"KUALA LUMPUR,
"*13th September, 1920.*

"DEAR SIR,

"In reply to your letter of the 10th instant the duly constituted General Committee of my Association will not come into existence until at least four branches of the Association have been formed, and delegates for the General Committee elected. Branches are now in the course of formation, and the General Committee should come into existence shortly.

"The Temporary Committee, through me, has already communicated its opinion to the Resident, Selangor, that the present scheme is inadequate, and should be supplemented by a cash grant. Presumably, the General Committee, when duly constituted, will confirm the actions of the Temporary Committee, and take the matter up strongly, but the Temporary Committee, from its very nature, can take no action which will be binding upon the General Committee.

"Your letter will be laid before the General Committee in due course.

"I have, etc.,
"(Sd.) BASIL J. P. JOAQUIM,
"*Hon. Secretary,*
"*United Services Great War Association of Malaya.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA,
"KUALA LUMPUR."

Mr. GRAY says that the ex-service men of Lower Perak recently held a meeting at which he had been asked to take the chair although he was not an ex-service man. At that meeting the questions of land and cash grants were discussed. It is quite obvious that to participate in the scheme as it stood, it was necessary for beneficiaries to have a certain amount of capital. This seemed a very hard condition, especially in the cases of young married men. The

majority appeared to favour a scheme where capital would be unnecessary. Another point raised was the fact that many of the men entitled to the benefit were not planters, and were not interested in the cultivation of rubber, and they therefore felt that some opportunity should be given to them of receiving the benefit in some other form. If they happened to be members of a commercial firm they might receive a sum of money to put into that business, after it had received the approval of the Government. The resolution which was passed at that meeting was to the effect that a loan be made to ex-service men, who left the Federated Malay States, and that the loan be free of interest, and be repayable in from 8 to 10 years. In the case of a loan for developing land, such loan to be sufficient properly to develop the land and that the recipient be allowed to invest the loan in any commercial undertaking approved by the Government. There was a case mentioned of a man who was in Kedah when the war broke out. That man joined up immediately and on returning to the country took up a billet in Perak and applied to the Perak Government for land. The Perak Government referred him to the Kedah Government and the latter could not help him because he was not resident there.

Mr. E. L. Huson, who first put forward the scheme of cash grants, says that the Association which he represents (the Ulu Selangor District Planters' Associations) held the view that any grant made should be free of interest. Having in view the fact that the Federated Malay States Government lent money to Siam at 2 per cent. he does not think it at all unreasonable that the Government should lend money to ex-service men for developing the land free of interest. The Land Grants Scheme was originally mooted in 1916, and they were now very near the end of 1920. He does not think Government could be said to have moved too precipitately in the matter. He would like to enter a plea for those men not included in Class A or B, comprising a large number of men who were unable to go away at once as soon as the war broke out. The men who went in 1917 must have been brave men because they knew what they were going to. He considers that one of the biggest flaws in the scheme was that it made invidious distinctions. His Association held that any benefits they granted to the returned soldier should be given pro rata for the time of service. He believes there are planters who would sooner not go in for the land scheme. There was nothing derogatory in the idea of cash grants. Men like Haig, French and Beatty had received them and these great men would be the first to say that they had done no more than the ordinary soldier and sailor. It would not be a bad idea if the Government permitted the soldier to sell the land. It would easily fetch $5,000 in normal times. Any Land Grants Scheme should be regarded as an insurance policy or an annuity, and it is only reasonable that those men who do not want to go in for the land scheme should be allowed the surrender value of their policy. He asks the Association not to let this question go into the background.

He says he was shown on Saturday a copy of the September issue of "The Planter" which contained what would appear to be an inspired article giving some details of an amended scheme of rewards for ex-service men which is certainly an advance upon the existing War Service Land Grants Scheme.

Mr. BRADBERY outlines the Johore State Land Scheme and suggests that a Committee be appointed to consider the whole question of rewards for ex-service men.

Mr. BRUCE calls upon the Secretary to read the article referred to by Mr. Huson.

The SECRETARY reads the following article from "The Planter" (issue September, 1920), which is the Official Journal of The Incorporated Society of Planters:

"Our views as to how the sacrifices of ex-service men can best be recognized and rewarded in material form by the Government, which has already admitted the moral claims of such men, are:

(i) That Government set aside a tract or tracts of land equal to, say, 50 or 100 times in acres the number of men whose claims for recognition are considered and allowed.

(ii) That the land be granted on easy terms to a company or syndicate which will develop it on behalf of the beneficiaries under the scheme.

(iii) That shares be allotted to ex-service men in proportion to their length of service with the Colours—men who have served five years would be given five shares of a denomination to be fixed: men who have served four years, four shares, and so on: or under the classification of the present scheme.

(iv) Government to pay all calls as they become due.

(v) No transfer or hypothecation of shares to be permitted within, say, eight years of allotment: but in case of death, rights to be transferable to heirs or next of kin.

(vi) Moneys advanced by Government and interest thereupon to be deducted from profits in a manner to be decided. We are of opinion that the existing Land Grants Scheme of 100 acres to individuals is not likely to be successful, while cash grants we do not consider to be at all advisable. The Government Scheme provides for a loan of a maximum of $250 for each acre planted, which, of course, is not enough to bring an acre into bearing: $450 would be a more correct figure.

We have been informed that a conference of the four Residents was held in Kuala Lumpur within the last few days and that a decision was made to revise the existing scheme on the lines indicated above, more, or less. It is, we believe, intended that the Planters' Loans Board shall administer the scheme."

Mr. GRAY thinks Mr. Bradbery's suggestion a good one.

Mr. JEAVONS suggests that the Committee, if appointed, be empowered to act entirely on its own responsibility.

Mr. HUSON suggests that a deputation wait upon the Chief Secretary and ascertain the Government's views and afterwards report to such Committee if appointed.

Mr. DUNCAN states that the Chief Secretary has already appointed a Special Committee to deal with the subject.

Major SLEE enquires whether it is the intention of the Committee suggested by Mr. Bradbery to revise the existing scheme or to propound alternative schemes.

Mr. RITCHIE does not think it possible at this meeting to go fully into so important a subject which he thinks should be dealt with by a Special Committee as suggested by Mr. Bradbery.

Mr. BRUCE therefore proposes that a Special Committee be appointed, with authority, to enquire into the matter of rewards for ex-service men and that such Committee consist of one delegate from each Constituent Association.

7.—REGISTRATION OF DRESSERS.

The SECRETARY submits the following resolutions forwarded by the Bahau-Kuala Pilah District Planters' Association :

(*a*) That the Government be approached regarding the registration of dressers throughout the Federated Malay States.

(*b*) That a Central Registration Office be established at Kuala Lumpur.

(*c*) That a register be kept of all men holding any form of dressers qualifications.

(*d*) That the man in authority be a Medical Officer.

(*e*) That the Medical Officer in charge be granted the power to control all the dressers and deal with any complaints.

Mr. BRUCE understands that there is a difference of opinion as to whether the above motions should be proceeded with but he feels sure all are agreed that registration of dressers is highly desirable in the interests of the planting industry and estate labourers.

Mr. KEPPEL-POWIS fears that the resolutions are not quite clear. What is really meant is that a registration office should be established under Government control and that a Government Medical Officer stationed in Kuala Lumpur should have charge of it.

Mr. GOOCH is in favour of the principle of registering dressers. He points out that such a system of registration would operate favourably in the cases of qualified dressers.

Mr. GRAY says his Association is not in favour of the resolutions as they stand as power would be taken away from estate managers. Particularly he fears that resolution (*e*) would not be in the best interests of estate managers and he suggests that (*e*) might be amended.

Mr. GILLESPIE is strongly in favour of simple registration of dressers, without control.

Mr. HARRISON thinks it would be advantageous if a registration and record of dressers were kept; but he trusts that dressers will not consider the establishment of either or both of these to be grounds for demanding any increase in pay.

Mr. BRUCE suggests that resolution (*e*) be deleted.

Mr. KEPPEL-POWIS agrees.

Mr. RITCHIE asks whether the idea of the resolutions was that there should be examination for dressers.

Mr. KEPPEL-POWIS believes that this District Planters' Association merely wished to have registration of dressers in order to prevent unqualified persons who call themselves dressers being in charge of sick labourers.

The SECRETARY explains that in 1914 matters relating of the registration of estate dressers and the issue of certificate of competency by Government were discussed by the Planters' Association of Malaya. He reads the following excerpts from a letter bearing date 24th October 1914, from the Principal Medical Officer, Federated Malay States, to the Secretary of the Planters' Association of Malaya:

"1. A register of estate dressers to be kept by my department—this register will contain the names of those who come up for examination—will be open to inspection by any estate manager or person duly authorized by him. Information regarding any dresser whose name is on the register will be supplied on application but it is not proposed to issue any certificates.

"2. Examinations of Government dressers are held twice a year in June and December—in Taiping and Kuala Lumpur alternately—the names of those who wish to enter for these examinations must be sent to my office at least one month beforehand.

"3. The examinations are divided into three sections and the dressers are graded accordingly. In order to pass the third grade examination an applicant should possess the VIIth standard school certificate and be attached to an estate hospital for at least two years, producing a certificate from the estate doctor to that effect, and pay a fee of $10. To enter for the second grade the applicant must produce a certificate from the estate doctor to the effect that he has served five years, and pay a fee of $15. To enter for the first grade the applicant must produce a certificate from the estate doctor to say that he has served thirteen years, and pay a fee of $25.

"It is proposed to attach the following information against the name of every dresser enrolled in the register: (1) Name, (2) Age, (3) Nationality, (4) Date of Appointment, (5) Where Employed, (6) Dates of Examination, and (7) Results."

After further discussion the resolutions are amended to read:

(*a*) That Government be approached regarding the registration of dressers throughout the Federated and non-Federated Malay States and the Straits Settlements.

(*b*) That a Central Registration Office be established.

(*c*) That a register be kept of all men holding any form of a dresser's qualifications and that certified copies of any entry in such register be supplied on application to any estate manager.

(*d*) That the registrar be a Medical Officer.

These resolutions are proposed by Mr. Keppel-Powis and seconded by Mr. Gooch which are put to the meeting and carried *nem dis.*

8.—MOTOR AMBULANCES.

The SECRETARY submits the following resolutions forwarded by the Bahau-Kuala Pilah District Planters' Association:

(*a*) That the Government be approached with regard to a supply of motor ambulances.

(*b*) An ambulance to be established as part of the equipment of every Government hospital throughout the Federated Malay States.

(*c*) That (if necessary) a fee be charged for the use of same.

Mr. KEPPEL-POWIS feels that perhaps these resolutions should be withdrawn as, from enquiries he has made, he understands that Government would not be prepared to move in the matter at the present moment.

Mr. GRABURN differs from Mr. Keppel-Powis and thinks that the matter should at least be discussed. He explains that there is a motor ambulance in the Batang Padang district.

Mr. BRADBERY supports Mr. Graburn and thinks that if the Association can be instrumental in causing lives to be saved by providing medical attendance by means of motor ambulances everything should be done. He says there is an excellent motor ambulance service in Johore.

Mr. JEAVONS also thinks that the resolutions should not be withdrawn and that motor ambulances are necessary.

Mr. ALEC DOUGLAS gives particulars of a case for which the motor ambulance in Kuala Lumpur was called.

After discussion the resolutions are amended as follows:

(*a*) That Government be approached with regard to the supply of motor ambulances.

(*b*) That a motor ambulance be made part of the equipment of police stations in approved districts throughout the Federated Malay States.

(*c*) That (if necessary) a fee be charged for the use of same.

Mr. DUNCAN thinks that it might be advisable to approach Government before forwarding the resolutions. He therefore proposes that in view of the difficulties experienced in transporting cases of accident and other serious cases of illness to hospitals, Government be asked to make motor ambulances available throughout the country.

Mr. KEPPEL-POWIS concurs.

Mr. JEAVONS seconds Mr. Duncan's resolution which is carried unanimously.

9.—RICE.

The SECRETARY submits the following correspondence:

"DEPUTY FOOD CONTROLLER,
"PENANG,
"*29th July, 1920.*

"A. F. C. 107/20.

"SIR,

"I have the honour to inform you that in consequence of complaints made from time to time of pilfering or tampering with bags of rice during transit, I have been in correspondence with the Railways.

"2. The following are extracts from letters written by the Assistant Traffic Manager:

"(*a*) You are no doubt aware that this department is responsible for the goods until the consignee has signed in the delivery book at the receiving station and that any damages or deficiencies should be brought to notice then by the consignee, and I should be furnished with specific instances with full particulars—Thus only can any irregularity be brought home.

"(*b*) I have the honour to state, after making further enquiries, that delivery of rice at destination is in the majority of cases taken by conductors, tindals, etc., of the rubber estates, and in such cases pilfering is more liable to occur than on the railway, on which the transport of rice is very carefully watched by the railway police and station staff.

"3. I will be obliged if you will circularise both your own members and also the Secretaries of district associations on this subject and point out to them how necessary it is that responsible persons shall be sent to meet rice trains.

"I have, etc.,

"J. INNES MILLER,
"*Agent, Food Controller, Penang.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA,
"KUALA LUMPUR."

Major SLEE asks whether it would be possible to approach the Government with a view to obtaining a further gantang of rice. He proposes that the ration of parboiled rice be increased to six gantangs for men and five for women.

Mr. JEAVONS understands that Government would give as much rice as possible if they had it to give.

Mr. BRADBERY seconds Mr. Slee's motion and the resolution is put to the meeting and carried unanimously.

10.—RAILWAY MATTERS.

The SECRETARY submits the following correspondence:

"GENERAL MANAGER'S OFFICE,
"KUALA LUMPUR,
"*24th July, 1920.*

"G.M.R. 3820/17.

"SIR,

"I have the honour to refer to previous correspondence on the subject of the provision of Railway Police Constables at certain stations for the protection of rubber, and to inform you that an additional constable has been provided at Alor Gajah Station.

"I have, etc.,
"F. TITCOMBE,
"*Secretary to General Manager.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA,
"KUALA LUMPUR."

11.—RESTRICTION OF RUBBER OUTPUTS.

Mr. BRUCE explains that as the result of a cablegram from London received by the Local Committee of the Rubber Growers' Association, a special meeting was held in Kuala Lumpur early during the month and was attended by representatives from the Planters' Association of Malaya, the Rubber Growers' Association and the Rubber Producers' Association of Malaya. He calls upon the Secretary to read the cable referred to and the reply sent as the result of the meeting.

The SECRETARY reads the following:

Telegram from Rubber Growers' Association, London, dated 7th September, 1920—

Urgent. It is estimated that apart from increased stocks in consuming countries and large quantities afloat there will be an unabsorbed surplus exceeding 34,000 tons rubber 31st December 1920 and still worse position feared for year 1921 if nothing done. Association regards position as grave and calling for immediate action. It is suggested reduction might be for last quarter of 1920 25 per cent. from estimated normal output for that period and for 1921 twenty per cent. reduction from normal until situation cleared. Unless restriction adopted by producers generally, it will be difficult to warrant proposal being pressed here but London strongly (sympathises ?) what is your opinion of this scheme being supported by local producers including Chinese and Japanese planters associations and roughly what proportion of local interests will join agreement. Telegraph fully as early as possible your views on the whole subject.

Cable despatched by Local Secretary, Rubber Growers' Association, Kuala Lumpur to the Rubber Growers' Association, London, E.C. 3.

Referring to your telegram of 7th inst. joint meeting Local Committee, P.A.M. Rubber Producers Association held today. Meeting in favour of restriction and recommend that estates now tapping alternately rest one quarter their tapping area and those tapping daily either adopt alternate partially or rest quarter of tapping area with the object of bringing about general reduction 25 per cent. Above subject to 70 per cent. of estates controlled by various bodies agreeing. Endeavouring to bring Chinese and Japanese into line. Meeting recommends your Association reconsider Report of Commission Protection Rubber Industry 1918 with a view to establishing organization on lines suggested therein.

The SECRETARY explains that the Rubber Producers' Association of Malaya have already decided upon a scheme for restricting output from October 1st and have circularised their members. He understands, on good authority, that the Government are prepared to legislate to provide for the compulsory curtailment of output if rubber growers and the rubber producers are unanimously in favour of legislation. He believes Mr. Duncan can throw some light upon the situation.

Mr. DUNCAN believes that the facts are as stated by the Secretary.

Mr. KING-HARMAN thinks that voluntary restriction will result in failure as it did in 1918 because some producers restricted output and others did not. He agrees that the Association should express it views to the Government.

Mr. BRUCE agrees that when voluntary restriction was tried it was anything but successful. He thinks that a resolution might be forwarded to Government asking that legislation be introduced to restrict output by 25 per cent. of normal.

Mr. KING-HARMAN would go even further than this. He advocates genuine restriction of outputs without taking into consideration the question of acreage.

Mr. DUNCAN is strongly in favour of having restriction in some definite way. The method which would be most fairly and easily worked would be for Government to enforce by law a prohibitive export duty of say 50 per cent. on rubber exported in any one period in excess of 75 per cent. of the normal amount exported. The percentage of normal output allowed at ordinary rates of duty could be altered from time to time as the situation demanded. He agrees with Mr. King-Harman that the imposition of so prohibitive an export duty would appear to be a fairer and more equitable method than that of restricting output by so many pounds to an acre.

Mr. GOOCH enquires what will happen to new areas about to come into bearing.

Mr. DUNCAN replies that no new areas could be brought into bearing at present except at a dead loss.

Mr. JEAVONS says that a big meeting of directors of local companies was held in Kuala Lumpur recently, and Mr. Kindersley had asked him to inform the meeting that a resolution was passed to the effect that directors were distinctly in favour of legislation to restrict crop. He personally is in favour of legislation on the lines recommended by the Rubber Industry Protection Commission of 1918.

Mr. GRABURN thinks the question of labour should not be lost sight of, and suggests that a good deal of opposition to restriction would be eliminated if Mr. Duncan were able to give an assurance that there would be no surplus labour if restriction of output was universal.

Mr. DUNCAN says he is unable to give an assurance of that kind but he honestly believes there will be no surplus labour. It is true that a certain number of tappers might be unable to obtain tapping work but he feels sure that such would be willing to undertake other estate work. He does not think that planters need anticipate having upon their hands any surplus labour.

Major SLEE is in favour of action being taken by the Government as conditions are likely to become very acute.

Mr. GOOCH enquires what directors of rubber companies would think if a resolution in favour of crop restriction legislation were passed and if Ceylon and other rubber producing countries did not agree to restrict output or introduce legislation compelling it.

Mr. DUNCAN thinks that directors of companies would be very glad to be told what to do.

Mr. JEAVONS suggest that if a resolution is passed Government should be asked to legislate on the lines laid down by the 1918 Rubber Commission.

Mr. DUNCAN is opposed to Mr. Jeavons' suggestions.

Mr. BRUCE also differs from Mr. Jeavons.

Mr. JEAVONS explains his idea as to getting Government to pass an Enactment which might come into force automatically whenever the price of rubber falls below a certain figure.

Major SLEE suggests restriction on a percentage basis of normal output.

Mr. KING-HARMAN is afraid that unless Government are told definitely what the members of the Planters' Association of Malaya wished to be done the matter might be referred back to them.

Mr. GRABURN asks how it is proposed to control native produced rubber.

Mr. BRUCE says that this could no doubt be done by the Customs Department.

Mr. DUNCAN asks Mr. Owen if he is able to say whether there are in district offices in the Federated Malay States registers of all native owned areas under rubber cultivation.

Mr. OWEN says that in 1918, by his express order, all the districts in Kinta had their registers brought up to date.

After further discussion, Mr. CLYDE JEAVONS proposes the following resolution: That the Planters' Association of Malaya urge upon Government the advisability of immediate restriction so that output may be reduced to 75 per cent. of the normal.

Major SLEE seconds Mr. JEAVONS' motion which is put to the meeting and carried unanimously.

12.—RUBBER EXHIBITION, 1921.

The SECRETARY explains that the Rubber Growers' Association have approached the Planters' Association of Malaya with reference to the Planters' Association of Malaya being responsible for an exhibit at the Rubber Exhibition, 1921. The Standing Committee discussed the matter and appointed a Sub-Committee consisting of the Vice and Acting Chairman, Mr. Bruce, and Messrs. H. L. Carter and Thos. H. Menzies. Mr. F. Clyde Jeavons is also a member of the Committee as representing Local Committee of the Rubber Growers' Association.

Mr. BRUCE desires to know whether the Planters' Association of Malaya are in favour of organizing an exhibit for the 1921 Rubber Exhibition. If the Association is in favour, he would suggest that the Sub-Committee be given full power to carry the matter through.

After discussion, it is resolved that the Planters' Association of Malaya take steps for the organization of an exhibit for the 1921 Rubber Exhibition and that the matter be left in the hands of the Sub-Committee already appointed, with authority.

13.—GENERAL.

(*a*) Mr. BRADBERY enquires whether it is in order for the Johore Government to charge a weighing fee of 50 cents a picul for rubber exported.

Mr. OWEN thinks that the matter is not one for the Planters' Association of Malaya and suggests that the Johore Planters' Association first approach the Johore Government.

Mr. BRADBERY thinks that owing to the present low price of rubber the imposition of a weighing fee is not justified.

(*b*) The SECRETARY reads the following letter from the Rev. Principal, J. D. McCulloch, father of the late J. Davidson McCulloch, who was for many years connected with the Planters' Association of Malaya:

"272, ST. VINCENT STREET,
"GLASGOW,
"*10th June, 1920.*

"DEAR SIR,

"Your letter of the 30th March last, with copy of the minutes of meeting of the Association held on the 29th January last, have been forwarded to me; and for both I am greatly obliged.

"In behalf of Mrs. McCulloch, myself and the surviving members of our family, I beg the favour of your conveying to the Association our sincere thanks for their sympathy with us in our sorrow. We also value very highly the kindly appreciation of our dear son and brother recorded in the minutes of the Association.

"Thanking you Sir, for your friendly covering letter.

"I am, etc.,
"(Sd.) JAMES DUFF MCCULLOCH.

"C. WARD-JACKSON, ESQ.,
"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA,
"KUALA LUMPUR, F.M.S."

(c) Mr. BRUCE calls attention to the appended summary of proceedings of the Standing Committee meeting held on 3rd September, 1920, and says it is proposed in future to issue a summary of proceedings of each meeting—

"PRESENT.—Messrs. J. Bruce (in the Chair), James French, W. R. C. Gray, F. Duncan Hindley, H. Case, A. R. Morgan, C. B. Graburn, C. W. Keppel-Powis, C. Bradbery, R. Gooch, G. D. F. Sinclair, Thos. H. Menzies, Capt. H. L. Carter, Major A. B. Slee and Mr. C. Ward-Jackson (Secretary).

The draft Bill to amend the Labour Code in order to provide for the care of labourers' dependents was discussed, and it was decided to recommend—

(1) The infants up to three years of age should be accommodated in the creches or nurseries which the Controller of Labour may, under the Bill when it becomes an Enactment, require employers to construct.

(2) That milk and/or rice should be supplied to infants at the employers' expense during the whole of the period they are accommodated in the creches and that the creches be open during the hours the mothers or guardians of such infants are at work.

(3) That "14 years" be substituted for "16 years" in section 3 of the Bill.

It was resolved to take steps to provide that the above be incorporated in the Bill.

The action of the Government in providing nurses and accommodation for maternity cases was noted with approval, and it was resolved to address Government in the matter of providing an adequate supply of general nurses also.

The Secretary was instructed to write to all Constituent Associations asking that attention be called to the desirability of giving effect to the recommendations contained in the Report of the Executive of the General Labour Committee on 1st October next as advised in the last paragraph of the Report referred to.

The Committee consider that no time should be lost by the General Labour Committee in appointing the Special Sub-Committee to go into the question of formulating a scheme for the establishment of co-operative estate shops. It was decided to address the Executive of the General Labour Committee in the matter.

The subject of cash grants for ex-service men was dealt with and opportunity for discussing it will be given at the forthcoming Planters' Association of Malaya meeting.

The question of the Association participating in, and organizing an exhibit for the 1921 Rubber Exhibition was discussed and a Sub-Committee consisting of Messrs. J. Bruce, H. L. Carter and Thos. H. Menzies was appointed to deal with the matter.

The next meeting was fixed for 27th September at Johore Bahru.

It was resolved to enter into an agreement with the Secretary for a term of years.

Other matters discussed were :

Weighment of Rubber ; Registration of Dressers ; Provision of Motor Ambulances ; Railway Matters ; Rice ; Imperial College of Technology and Science, South Kensington, Botanical Research Scheme ; Road Traffic and Correspondence."

With a vote of thanks to the chair, the meeting terminates at 12.45 p.m.

C. WARD-JACKSON,
Secretary.

Rubber statistics for 1919 from holdings less than 100 acres in extent.

District.	Acreage planted.	Acreage in bearing.	Number of trees tapped.
Perak—			
Krian	11,918	5,091	* 763,650
Larut	20,072	6,472	* 970,800
Kuala Kangsar	69,000	45,000	* 6,750,000
Upper Perak	† 6,723	† 1,689	† 253,350
Kinta	† 21,180	† 10,605	† 1,590,750
Bantang Padang	35,670	* 15,904	2,385,665
Lower Perak	17,554	17,012	* 2,551,800
Total ...	182,117	101,773	15,266,015
Selangor—			
Kuala Lumpur	16,730	10,943	* 1,641,450
Klang	12,014	7,967	‡ 1,593,400
Ulu Langat	56,628	46,098	* 6,914,700
Kuala Langat	15,117	4,657	* 698,550
Ulu Selangor	† 21,330	6,238	† 935,700
Kuala Selangor	6,902	2,677	* 401,550
Total ...	128,721	78,580	12,185,350
Negri Sembilan—			
Seremban	17,538	12,586	* 1,887,900
Kuala Pilah	18,761	6,470	* 970,500
Tampin	18,893	8,355	* 1,253,250
Port Dickson	16,935	1,515	* 227,250
Jelebu	1,774	1,405	* 210,750
Total ...	73,901	30,331	4,549,650
Pahang—			
Lipis	4,350	1,545	* 231,750
Raub	† 5,500	† 4,300	† 645,000
Kuantan	† 12,000	† 1,500	† 225,000
Pekan	627	233	* 34,950
Temerloh	† 1,810	† 1,110	† 166,500
Total ...	24,287	8,688	1,303,200

* Calculated at the rate of 150 trees to an acre. † Taken from the return for 1918. ‡ Calculated at the rate of 200 trees to an acre.

Abstract of Meteorological Readings in the various districts of Malaya for the month of July, 1920.

District.	Mean Barometrical Pressure at 32° Fah.	Maximum in Sun.	Temperature.				Hygrometer.				Prevailing Direction of Winds.	Total Rainfall.	Greatest Rainfall during 24 hours.
			Mean Dry Bulb.	Maximum.	Minimum.	Range.	Mean Wet Bulb.	Vapour Tension.	Dew Point.	Humidity.			
Kelantan, Kota Bahru	...	142.16	83.2	91.61	74.38	17.22	78.3	.868	75.0	76.	...	6.39	1.30
Pahang, Kuala Lipis	...	...	82.37	90.22	76.48	13.74	77.24	...	...	...	...	.48	.32
Johore, Johore Bahru	...	...	...	87.85	74.16	12.69	...	...	...	...	...	8.00	2.05
Singapore, Kandang Kerbau ...	1009.6	159.0	84.0	89.2	75.2	14.0	78.8	.913	...	78.	S.W.	7.60	1.55
Malacca, Durian Daun	1009.8	143.0	83.0	88.0	74.	14.	70.	.900	...	78.	S.W.	5.29	1.57
Negri Sembilan, Seremban ...	...	150.5	81.2	88.4	73.2	15.2	75.8	.788	73.3	78.8	W.	4.12	2.12
,, Kuala Pilah ...	...	146.9	83.3	91.1	...	...	78.8	.967	78.4	83.2	...	6.60	6.20
,, Port Dickson ...	...	119.0	83.8	90.3	75.4	14.9	78.4	.861	74.4	73.6	...	3.71	1.92
Selangor, Kuala Lumpur ...	29.803	148.5	83.6	91.6	72.2	19.4	77.5	.832	73.4	72.	Calm	3.07	2.51
,, Klang	...	...	82.9	87.1	75.8	11.3	76.2	...	...	...	...	1.75	.62
,, Kuala Selangor ...	...	...	...	90.5	75.3	15.2	...	...	...	...	...	1.44	.66
,, Rawang	...	...	...	93.1	73.0	20.1	...	...	...	...	...	4.53	3.01
Perak, Telok Anson	...	...	83.39	92.	71.	21.	76.62	.827	...	73.	...	2.24	1.06
,, Ipoh	...	...	83.41	95.	70.	25.	76.60	.826	74.26	73.	...	5.78	3.58
,, Taiping	...	113.0	82.78	94.	70.	24.	79.33	.957	..	87.	...	4.33	1.53
,, The Cottage	...	...	...	...	...	...	...	...	...	...	...	11.06	2.86
,, Parit Buntar	...	...	83.49	92.	72.	20.	78.23	.897	...	79.	...	3.58	1.37
Penang, George Town	1007.3	143.3	84.3	90.5	72.1	18.4	80.6	.887	70.4	70.4	N.E.	3.18	.74
Kedah, Alor Star	...	...	...	...	...	...	...	...	...	...	...	6.25	1.11
Perlis, Kangar	...	...	...	89.74	74.61	15.13	...	...	...	...	...	8.26	1.75

Abstract of Meteorological Readings in the various districts of Malaya for the month of August, 1920.

District.	Mean Barometrical Pressure at 32° Fah.	Maximum in Sun.	Temperature.				Hygrometer.				Prevailing Direction of Winds.	Total Rainfall.	Greatest Rainfall during 24 hours.
			Mean Dry Bulb.	Maximum.	Minimum.	Range.	Mean Wet Bulb.	Vapour Tension.	Dew Point.	Humidity.			
Kelantan, Kota Bahru ...	...	143.25	81.9	90.9	73.0	17.8	76.0	.785	72.	72.	...	9.23	1.64
Pahang, Kuala Lipis	...	...	80.7	88.1	74.8	13.3	75.6	...	...	...	...	11.05	4.25
Johore, Johore Bahru	...	...	...	86.3	72.7	13.5	...	...	...	...	...	19.00	4.37
Singapore, Kandang Kerbau ...	1009.3	158.0	83.6	87.7	73.9	13.6	77.6	.874	...	78.6	Calm	10.46	1.69
Malacca, Durian Daun ...	1010.4	141.0	81.	87.	73.	14.	77.	.905	...	83.	N.E.	6.53	1.80
Negri Sembilan, Seremban ...	...	149.4	79.4	89.4	70.	19.4	74.9	.835	73.5	81.9	N.E.	9.49	3.38
„ Kuala Pilah ...	...	146.4	81.9	91.3	...	...	78.5	.942	74.9	83.1	...	2.72	1.10
„ Port Dickson	...	108.4	81.2	88.3	73.8	14.5	76.6	.862	74.7	81.1	...	10.35	1.38
Selangor, Kuala Lumpur ...	29.793	151.2	81.9	91.4	72.3	19.1	78.4	.908	76.3	82.	S.W.	5.93	1.52
„ Klang	...	...	81.1	85.1	75.1	10.0	76.4	...	...	...	...	10.32	1.02
„ Kuala Selangor ...	...	...	...	90.1	74.5	15.6	...	...	...	...	...	6.20	3.14
„ Rawang	...	...	...	91.0	72.7	18.3	...	...	...	...	...	5.60	1.51
Perak, Telok Anson	...	...	81.69	92.	70.	22.	76.7	.855	...	80.	...	3.51	1.81
„ Ipoh	...	...	81.33	95.	69.	26.	75.8	.819	73.	76.	...	4.35	.90
„ Taiping	...	112.	81.54	93.	69.	24.	78.2	.923	...	87.	...	5.15	1.33
„ The Cottage	...	...	...	...	...	...	...	...	...	...	...	18.70	6.33
„ Parit Buntar	...	...	82.57	93.	71.	22.	79.4	.873	...	79.	...	10.86	4.37
Penang, George Town	1007.3	148.7	82.1	89.5	71.7	17.8	76.0	.873	67.4	79.6	N.W.	17.83	4.29
Kedah, Alor Star	...	...	...	...	...	...	...	...	...	...	...	8.78	2.41
Perlis, Kangar	...	...	...	88.12	74.03	14.09	...	...	...	...	...	8.67	1.99

Abstract of Meteorological Readings in the various districts of Malaya for the month of September, 1920.

District.	Mean Barometrical Pressure at 32° Fah.	Maximum in Sun.	Temperature.				Hygrometer.				Prevailing Direction of Winds.	Total Rainfall.	Greatest Rainfall during 24 hours.
			Mean Dry Bulb.	Maximum.	Minimum.	Range.	Mean Wet Bulb.	Vapour Tension.	Dew Point.	Humidity.			
Kelantan, Kota Bahru	...	144.56	81.7	90.3	73.8	16.4	76.7	.820	73.3	75.	...	13.30	2.28
Pahang, Kuala Lipis	...	...	81.25	87.9	74.4	13.5	76.0	...	...	...	...	11.50	3.40
Johore, Johore Bahru	...	...	...	87.3	73.5	13.8	...	...	...	...	...	17.29	3.30
Singapore, Kandang Kerbau ...	1008.4	160.0	83.3	88.0	75.3	14.7	78.1	.890	...	77.7	Calm	8.79	2.12
Malacca, Durian Daun	1009.8	135.0	81.0	87.0	73.0	14.0	77.	.901	...	82.	N.E.	9.23	1.92
Negri Sembilan, Seremban ...	...	149.5	79.0	87.8	70.7	17.1	77.	.855	75.6	90.	N.W.	7.25	2.79
,, Kuala Pilah ...	...	154.7	81.3	90.4	...	...	77.2	.861	74.7	80.6	...	4.99	1.57
,, Port Dickson	...	117.1	82.3	89.3	74.1	15.2	77.9	.872	75.	79.7	...	6.99	1.89
Selangor, Kuala Lumpur ...	29.792	145.8	80.6	89.6	72.2	17.4	77.3	.851	74.7	79.	N.E.	9.28	2.53
,, Klang	...	...	80.3	84.2	74.9	9.3	76.1	...	...	...	...	13.73	3.51
,, Kuala Selangor ...	...	...	...	89.4	74.2	15.2	...	...	...	...	...	9.32	4.05
,, Rawang	...	...	...	90.2	72.6	17.6	...	...	...	...	...	3.97	1.49
Perak, Telok Anson	...	...	81.96	94.	71.	23.	77.38	.874	...	81.	...	7.00	2.28
,, Ipoh	...	...	81.77	94.	70.	24.	76.3	.836	74.2	78.	...	7.51	1.65
,, Taiping	...	112.	81.12	93.	70.	23.	78.0	.920	...	87.	...	10.27	2.08
,, The Cottage	...	...	...	...	...	...	...	...	...	...	...	17.24	2.75
,, Parit Buntar	...	...	81.91	94.	71.	23.	77.0	.865	...	81.	...	7.28	1.96
Penang, George Town	...	152.	81.48	86.7	71.5	...	78.4	...	...	...	N.W.	15.21	2.91
Kedah, Alor Star	...	...	...	...	...	...	...	...	...	...	...	11.95	2.45
Perlis, Kangar	...	...	...	87.90	74.53	13.37	...	...	...	...	...	11.41	4.80